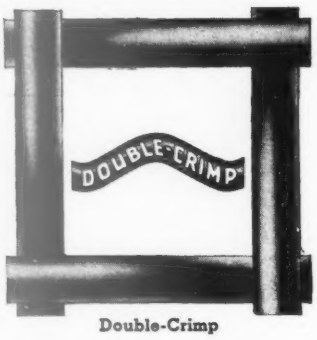
Rochester Public Library
AUG 17 1943
115 South Avenue
ROCHESTER, N.Y.

HIT AND QUARRY

AUGUST, 1943

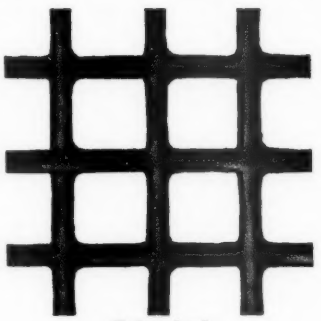
FOR 26 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD



Double-Crimp

"The Perfect"

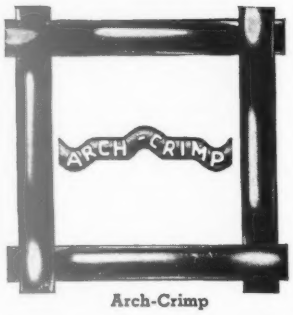
Wire Cloths and Screens



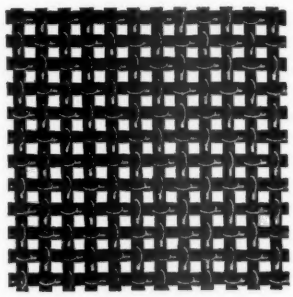
Galvanized

of

SUPER-LOY
STEEL
GALVANIZED STEEL
STAINLESS STEEL
NICKEL-CHROME STEEL
PHOSPHOR BRONZE
BRASS
COPPER
MONEL
NICKEL
ALUMINUM

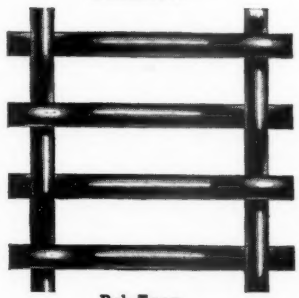


Arch-Crimp

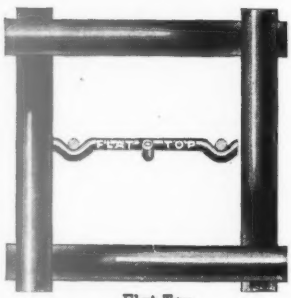


Calendered

Intermediate-Crimp



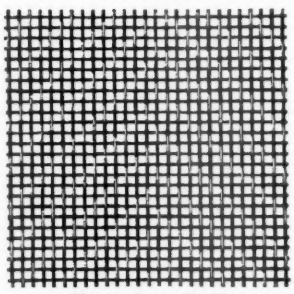
Rek-Tang



Flat-Top

•

Any Special Metal for Any Service



Herringbone Twill

"Perfect" WEAVES

Arch-Crimp
Coiled
Double-Crimp
Double-Fill
Dutch
Flat-Top
Herringbone
Intermediate-Crimp
Rek-Tang
Selvage-Edge
Straight-Warp
Stranded
Sta-Tru
Triple-Warp
Twilled
Twisted-Fill
Twisted-Warp

"Perfect" PROCESSING

Arc-Welding
Bending
Binding
Brazing
Calendering
Coiling
Crimping
Cutting
Dipping
Dishing
Finishing
Flanging
Flattening
Forming
Framing
Galvanizing
Jointing
Knuckling
Painting
Rolling
Selvaging
Shaping
Shearing
Slitting
Soldering
Spot-Welding
Squaring
Stitching
Tack Welding
Trimming

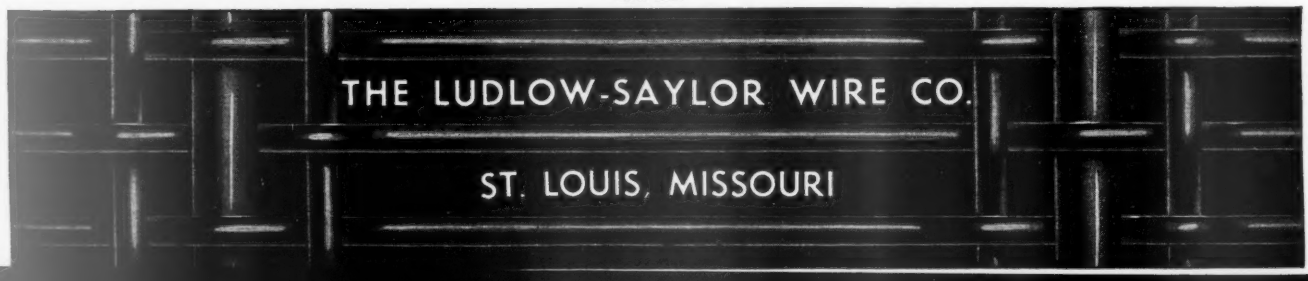
"Perfect" PRODUCTS

Baskets
Circles
Coils
Cones
Cylinders
Discs
Forms
Leaves
Lengths
Panels
Pieces
Ribbons
Rings
Rolls
Sections
Segments
Strips
Templates

Illustrations show items listed in bold-face type.

Other wire cloths and screens will be illustrated in subsequent advertisements of this series.

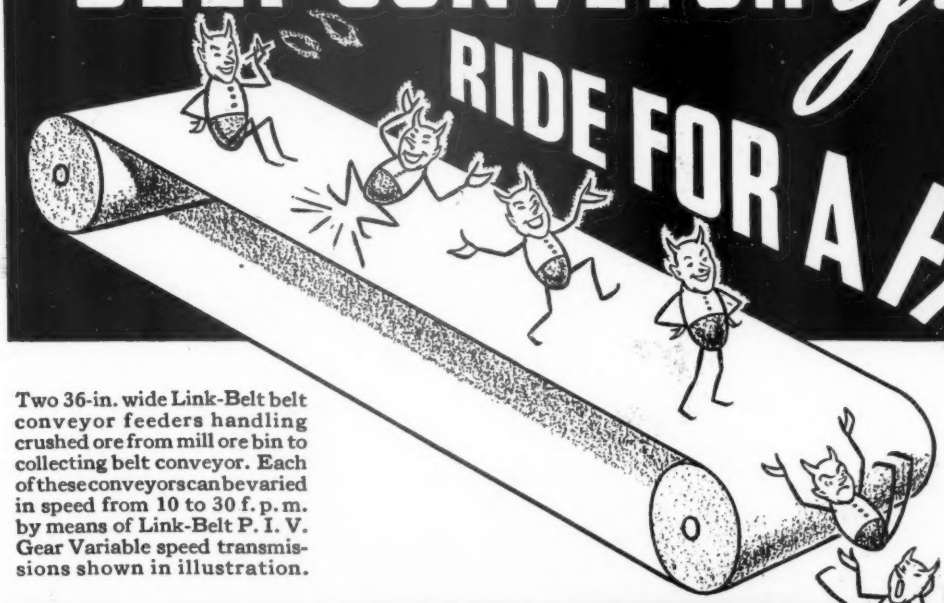
Sta-Tru



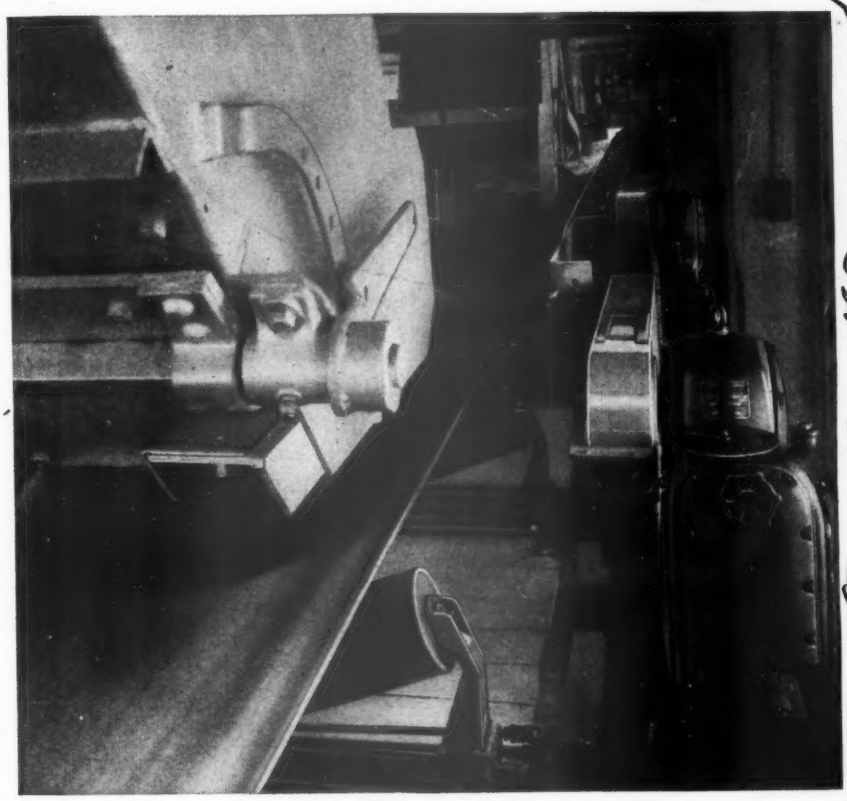
THE LUDLOW-SAYLOR WIRE CO.

ST. LOUIS, MISSOURI

BELT CONVEYOR *Gremlins* RIDE FOR A FALL



Two 36-in. wide Link-Belt belt conveyor feeders handling crushed ore from mill ore bin to collecting belt conveyor. Each of these conveyors can be varied in speed from 10 to 30 f. p. m. by means of Link-Belt P. I. V. Gear Variable speed transmissions shown in illustration.



WHEN YOU DO THESE SIX THINGS:

1. KEEP INSTALLATION CLEAN

Make periodic inspections daily to see that there is no accumulation of material that has spilled off the belt.

2. USE IMPACT IDLERS . . .

Rubber-tread impact idlers at loading and transfer points will prolong belt life by preventing cutting and bruising.

3. "TRAIN" THE BELT . . .

For efficient operation, keep both the carrying and return runs of a conveyor belt practically centered on the supporting idlers.

4. MAINTAIN THE "TRAINING"

Maintaining the "training" of the belt on the conveyor is assured at all times if self-aligning idlers are used.

5. MAINTAIN BELT TENSION

Proper belt tension eliminates excessive belt sag between idler rolls and prevents unnecessary wear.

6. LUBRICATE PROPERLY . . .

Never over-lubricate idler rolls and other moving parts, for too much lubrication is as bad as too little.

GREMLIN CHASERS: Inspect equipment regularly—and make replacements with genuine Link-Belt parts when necessary. Link-Belt manufactures a complete line of idlers, pulleys, bearings, take-ups, drives, trippers, etc., built for every service.

LINK-BELT
BELT CONVEYOR EQUIPMENT

LINK-BELT COMPANY
Indianapolis, Chicago, Philadelphia, Atlanta, Dallas, San Francisco, New York, Toronto. Offices, warehouses and distributors in principal cities.

2201B

PIT AND QUARRY, August, 1943. Vol. 36. No. 2. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $2 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

Setting new Records!

Record No. 1: Twin-Unit Plant, shown in the photographs, with 10″ x 36″ jaw crusher, and 40″ x 22″ roll crusher. Airport construction job in California, requiring both 1¼″ minus and 2½″ minus. Production for entire job averaged 500 tons per hour, crushing 25%.

Record No. 2: Quarry work in California. Twin Unit Plant with 21″ x 38″ jaw crusher, and 40″ x 22″ roll crusher. Averaging 400 to 450 tons per hour, to 2″ minus, crushing 50%.

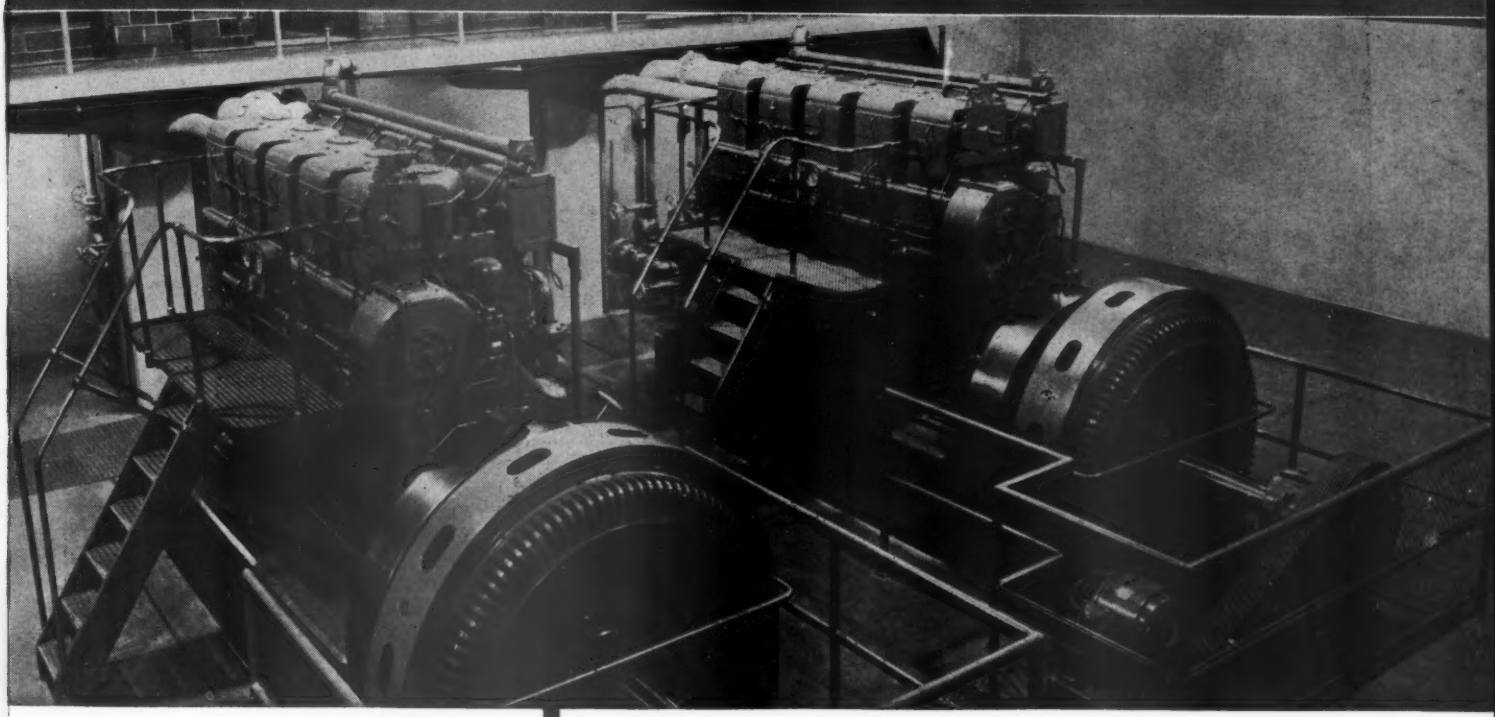
Production records like these—never before approached in a portable plant to our knowledge—explain why more and more operators are building their plans for wider and more profitable operations around the Austin-Western Twin Unit Plant. We'll be glad to tell you the whole story. THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Illinois, U.S.A.

BUILDERS OF ROAD MACHINERY

Austin Western

SINCE 1859

Mc Gregor Picked A Team of Thoroughbreds



This new municipal plant at McGregor, Iowa, with its pair of Cooper-Bessemer 375 hp, 5 cylinder, Type JS Diesels, is considered one of the outstanding Diesel electric plants in the middle west. Designed by the Stanley Engineering Company and built by the Electric Equipment Company, the project was directed by an alert Town Council and Dr. J. F. Walter, mayor.

YOU'D find it interesting to inspect this new municipal plant at McGregor, Iowa . . . interesting because it is one of the show plants of the mid-west—modern . . . clean cut . . . carefully arranged inside and out. It is obvious that equally careful planning and thought went into the selection of every item of equipment.

Cooper-Bessemer has a long and successful war-and-peacetime record in supplying reliable power units for every purpose . . . stationary and locomotive Diesels, engine-driven compressors, as well as large industrial and generator plant engines, Diesel or gas.

Operators in the crushed stone, lime, sand and gravel, cement, gypsum and allied industries, are meeting urgent production schedules with the aid of C-B engines—engines that are delivering maximum power output around-the-clock.

Let C-B engineers help you with your power problems.

THE COOPER-BESSEMER CORPORATION

MOUNT VERNON, OHIO and GROVE CITY, PENNA.

New York Washington St. Louis Shreveport Los Angeles
Tulsa Houston Dallas

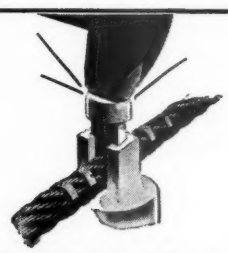
"Old friend . . . fine wire rope"

Several thousand miles to the west of where you're reading this, an American face lights up as a welcome friend from home arrives.

Back here in the States, like thousands of others now in uniform, he learned the friendliness of dependable Wickwire Rope.

He knows *you* need Wickwire Rope, too, to keep things running on the home front. So he appreciates *your* contribution in making the rope you already have last longer, so more can be spared for the important work over *there*. But when you *do* order, won't you take it in coils when the lengths permit—so the handier reels can go to the front? Wickwire Spencer Steel Company, 500 Fifth Ave., New York.

For outstanding production accomplishments, Wickwire Rope was the first in all New England to win the coveted Maritime M and Victory Fleet Flag.



WHEN CUTTING WIRE ROPE, seizing is important, whether it is preformed or standard lay. The free book "Know Your Ropes" will help your new men (old, too!) learn the right and wrong ways to care for and handle wire rope to make it last longer. Send for your free copy.

SEND YOUR WIRE ROPE QUESTIONS TO WICKWIRE SPENCER

WICKWIRE ROPE

Sales Offices and Warehouses: Worcester, New York, Chicago, Buffalo, San Francisco, Los Angeles, Tulsa, Chattanooga, Houston, Abilene, Texas, Seattle. Export Sales Department: New York City

WISSCO PRODUCTS

GULF LUBRICATION

is paying production dividends

in scores of Quarries and Cement Plants

The quality lubricants and application methods recommended by Gulf Service Engineers cut wear and mechanical delays to a minimum, help keep equipment producing at top wartime speed and efficiency.

By reducing wear and warding off production-jamming mechanical troubles, Gulf Lubrication has accounted for substantial increases in output in many quarries and cement plants. Here's a typical case:

"Our big jaw crusher gave us a lot of trouble until we called in a Gulf Lubrication Service Engineer and followed his recommendations," says a crusher plant Superintendent. "The main bearing had to be replaced every three months at a total cost of over $5,000 a year. With Gulf H. M. Grease and a change in the grooving of the bearing—as the Gulf engineer advised—we put an end to this expense, and there are still no signs of bearing failure after over a year of trouble-free service."

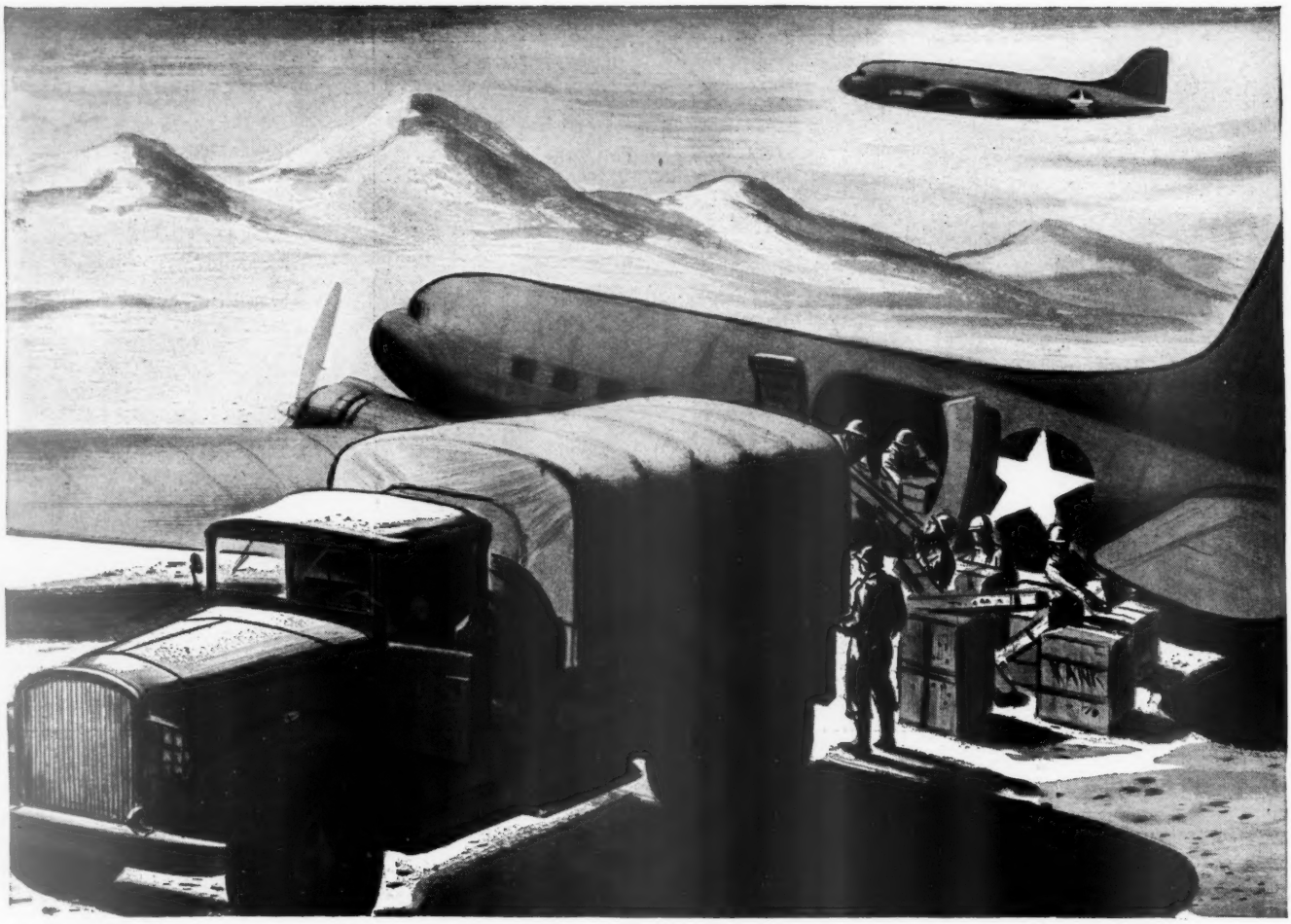
Your plant or quarry, too, can benefit from the recommendations and helpful counsel of a Gulf Lubrication Service Engineer. Drawing on his wide experience with the lubrication of all types of quarry and cement plant equipment, he will cooperate with you to install the kind of lubrication practice that means full capacity equipment performance and maximum protection against excessive wear and resulting mechanical troubles.

The services of a Gulf Engineer—and the Gulf line of more than 400 quality lubricants—are quickly available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write or phone your nearest Gulf office today.

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION · GULF REFINING COMPANY

GULF BUILDING · PITTSBURGH, PENNSYLVANIA



YOU SAID IT, SOLDIER

"The lumbering unprotected C-47's have become the aerial Mack trucks *of this war in North Africa"*
—from "Stars and Stripes", the soldiers' newspaper

If you've ever seen a Mack in action, you know why Stars and Stripes' soldier-reporter called those husky Douglas Skytrains "Mack trucks". For years, Americans have used the word "Mack" as an adjective to mean the best in cargo-carrying dependability.

Soldiers learned to respect Mack trucks in the last war. They watched Macks plow through Argonne mud so deep you couldn't see the wheels. In World War II, they're seeing even better Macks take even bigger loads through worse mud—and through shifting sand and freezing snow as well. They know a Mack will haul whatever you've got wherever you want it to go!

Yes, the soldiers in this war, too, will know what the phrase "Built Like a Mack" *really* means!

Mack Trucks, Inc., Empire State Building, New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.

Mack

TRUCKS
FOR EVERY PURPOSE
ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!

Let this Exide Catalogue solve your "Off-the-Highway" Battery Problems

NO matter what your Heavy Duty Battery problems may be, you're bound to find the answer in Exide's catalogue addressed to the field. It combines all the "know-how" of Exide's Engineers. It tells you how to maintain your batteries regardless of their make—also, how to select the proper type and size of Exide Heavy Duty Batteries for your equipment.

Write for your free copy today.

Wherever Heavy Duty Batteries are used for "Off-the-Highway" equipment, you can bet your bottom dollar on Exide efficiency. These batteries are sturdy specialists, built to *take it* when the going gets tough, and built to *hand it out* when a dependable flow of current is needed most.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia
Exide Batteries of Canada, Limited, Toronto

ARMY E NAVY

BUY TO LAST
SAVE TO WIN

Exide
HEAVY DUTY
BATTERIES

This CONSERVATION PLAN

will help you

SAVE MAN-HOURS . . .

SAVE MATERIALS . . .

SPEED PRODUCTION

1. Conserve

by strategic selection, application and use of electrical equipment.

EXAMPLE

Standard gearmotors or speed reducers save materials required by sheaves, belts, chains and line shafts. In addition, they commonly effect power or energy savings up to 10.5%.

2. Conserve

by utilizing new developments that reduce need for critical materials and man-hours.

EXAMPLE

X-ray inspection detects defective castings or welded sub-assemblies before they are machined or assembled. It replaces "destructive" tests . . . reduces rejects . . . eliminates wasted machinery man-hours.

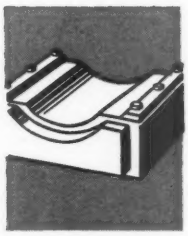
3. Conserve

by utilizing available facilities for preventing breakdowns and reducing machine outages.

EXAMPLE

"Maintenance Hints" — a complete, pocket-size manual covering recommended upkeep practice for electrical apparatus—is a maintenance help available without charge. Check your Westinghouse representative for copies.

4. Conserve



by utilizing materials which in many cases can replace critical materials and do a better job.

EXAMPLE

Micarta, a heavy-duty industrial plastic, outwears other materials in many bearing applications. Typical of many uses are steel mill roll neck bearings and marine stern tube and pintle bushings.

5. Conserve

by tapping all sources of salvageable scrap.

EXAMPLE

Systematic planning can uncover many ways of reclaiming worn equipment and waste material. Samples of salvage forms and organization charts in use in Westinghouse plants will gladly be made available on request.

Wartime Conservation means MORE than just conserving copper, steel, aluminum . . . it means the most strategic possible use of all of the ingredients of Victory—materials, man power, time and ingenuity.

These five major points comprise a complete program developed by Westinghouse for Wartime Conservation. This program packages up Westinghouse engineering experience in the entire field of electric and power equipment and related materials. Examples noted are but five of many specific recommendations.

This experience and these recommendations are offered fully and without obligation.

Ask your Westinghouse representative today for a copy of the new 100-page book, "WARTIME CONSERVATION." Or write direct to Dept. 7-N, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

J-90481

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

TRAYLOR

Multi-Stage FINE REDUCTION CRUSHER

The Traylor-Stearns Multi-Stage Fine Reduction Crusher is incomparable for fine crushing for several reasons—(1), being, in effect, THREE machines in one, it SIZES the initial material (in the Upper Stage), FEEDS the Lower Stage with exactly the right quantity, evenly distributed, and FINISHES the reduction (in the Lower Stage) in unusual capacity; (2) the machine cannot choke at any setting because the crushing elements are the Traylor Original Patented Non-Chokable Bell Head and Curved Concaves, which save power; (3) simple devices render adjustment easily and rapidly; (4) it is automatically lubricated and effectively protected against destructive dust and grit, and breakage by tramp steel.

The Multi-Stage is built in a range of sizes that render it widely applicable where fine product is required in large capacity. For instance, the smallest machine (size 1'-8") may be operated at 1/8" setting (closed side) and can be adjusted upward to 3/8" setting (closed side). The largest Multi-Stage at present (4'-0") may be set as close as 5/16" (closed side) and can be adjusted upward to 3/4" (closed side). The in between sizes are 2'-4" (setting range 3/16"-1/2") and 3'-0" (setting range 1/4"-5/8").

WE BUILD

Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Slakers
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

GET BULLETIN 1113

TRAYLOR

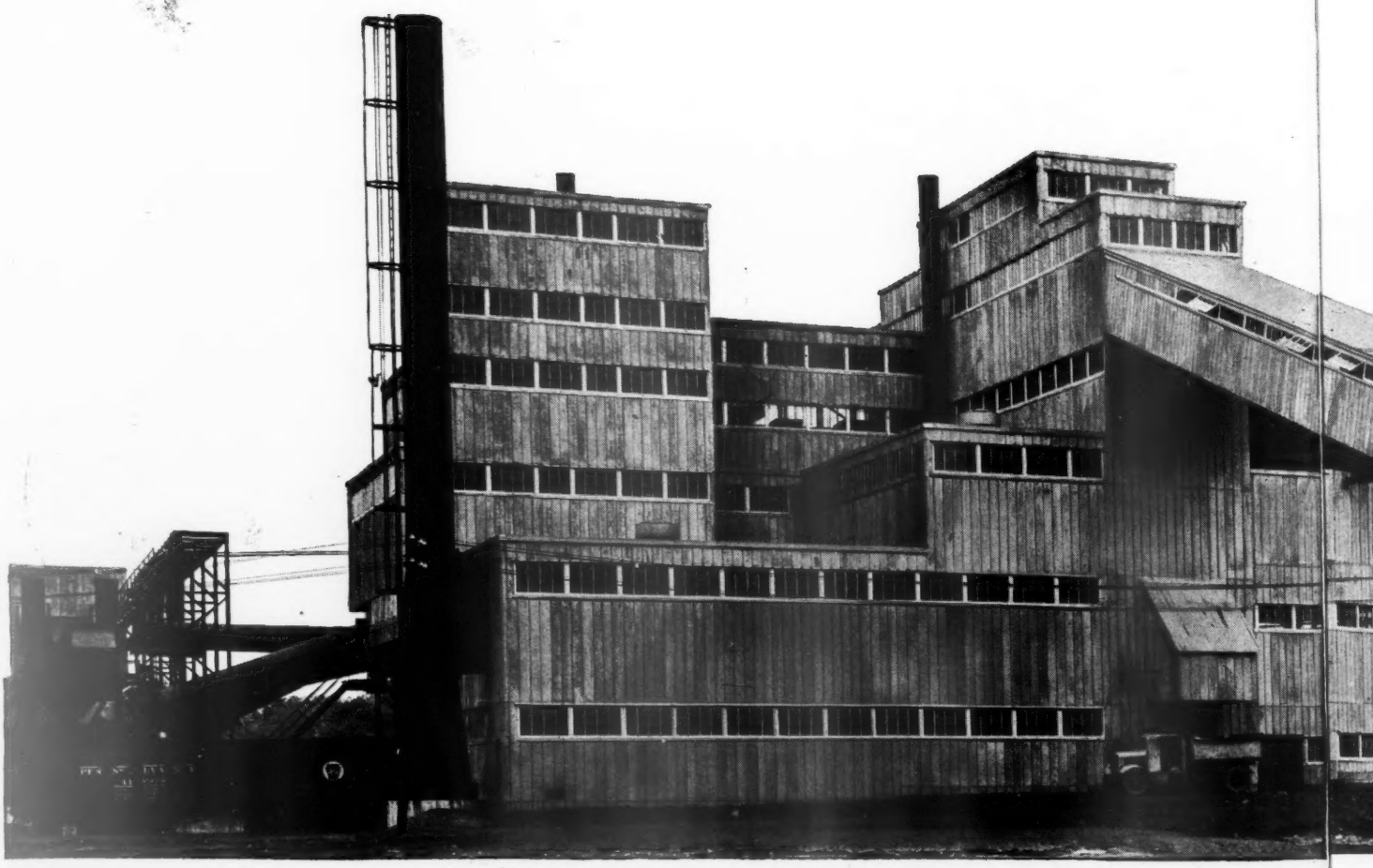
ENGINEERING & MANUFACTURING CO.
MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

NEW YORK CITY 3416 Empire State Bldg.
CHICAGO 2051 One La Salle St. Bldg.
SALT LAKE CITY 101 West Second South St.
LOS ANGELES 919 Chester Williams Bldg.
SPOKANE S. 2707 Rhyolite Rd.

B. C. EQUIPMENT CO., LTD.
551 Howe St., Vancouver, B. C.

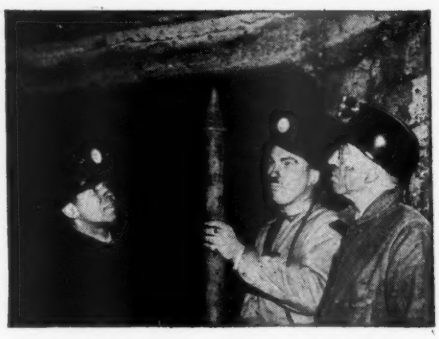
Export Department — 104 Pearl St., New York City. **Foreign Sales Agencies:** London, Lima, Rio de Janeiro, Buenos Aires, Santiago, Antofagasta, Oruro, Montevideo.

They darned a rip a quarter of a mile long to keep coal moving to war industries



1 Here is the slope belt that carries coal from underground operations to the top of the coal preparation plant. The belt is 4 ft. wide and 1450 ft. long... more than a quarter of a mile. The entire coal output of the mine is carried on this extra strong belt.

2 The accident occurred just behind this dust screen. The firmly wedged, sharpened jack pipe acted as a perfect cutting tool... aided by the 250-h.p. drive of the belt motor. No belt is made strong enough to withstand such punishment.



3 This is the spear-shaped head of the 8-foot, heavy steel jack pipe that fell into the rotary coal dump, and pierced the belt and the steel decking. Its flange became wedged so firmly that the jack pipe had to be cut free with acetylene torches.

UNITED STATES

This million dollar coal preparation plant is one of the units that is enabling the coal mining industry to increase its output approximately ten per cent this year. Here, coal is washed, graded and prepared for shipment.

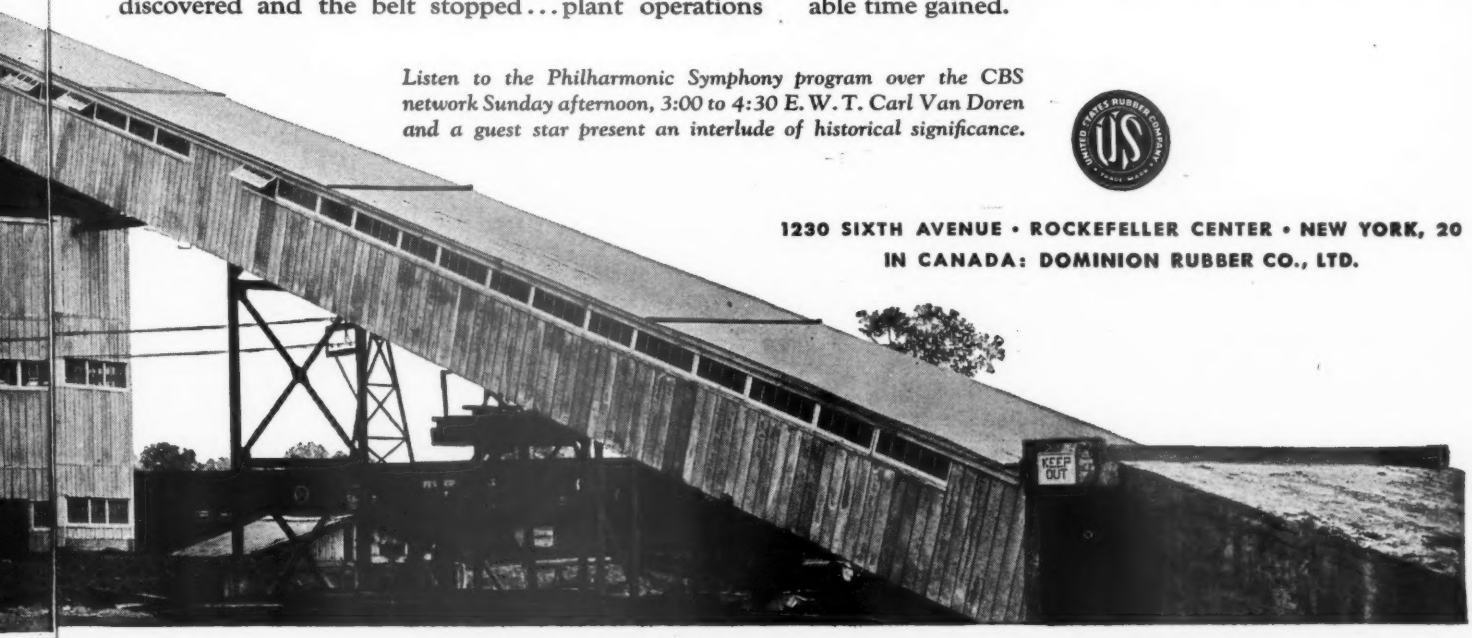
It's a tremendous plant... but its uninterrupted operation depends on the smooth functioning of the conveyor belt that carries coal from far below the surface of the earth to the top of the plant itself where grading and cleaning processes start.

Not long ago an unusual accident occurred which ripped more than 1400 feet of this extra strong belt. A newly sharpened steel jack pipe hurtled down with a load of coal. It pierced the belt and the steel decking beneath it... became firmly wedged between this sheet of steel and the coal-crushing rolls. But the 250-horsepower belt-drive motor droned on... drove the belt past this perfect cutting tool. When the damage was discovered and the belt stopped... plant operations came to a standstill. Shipments of fuel, vital to America's war industries and railroads, were halted.

Immediately the plant superintendent telephoned United States Rubber Company. *Would the plant have to shut down until a new belt was built, shipped and installed? Or... could it be repaired?* They said it could... made suggestions which were promptly carried out ...4600 rip plates required to do the job were rounded up by the local distributor of industrial supplies. The United States Rubber Company representative went to the plant... stayed on the job continuously until it was completed.

Twenty-five and one-half working hours later the plant was in full swing again. Coal flowed steadily from the mine. The quarter-mile rip had been darned... valuable rubber and equipment conserved... invaluable time gained.

Listen to the Philharmonic Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 E. W. T. Carl Van Doren and a guest star present an interlude of historical significance.



1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK, 20
IN CANADA: DOMINION RUBBER CO., LTD.

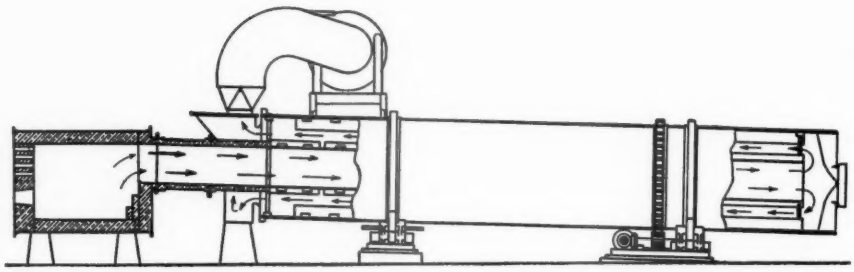
4 The belt was repaired by bolting rip plates of thin steel through it. More than 4600 were used ... approximately a ton of steel. The local distributor furnished the first supply; and arranged emergency shipments from factory stock.

5 After the belt was repaired, it looked like this. The long rip has been darned successfully. The picture was taken after a test run of the belt had been completed satisfactorily and operations were ready to go into full swing again.

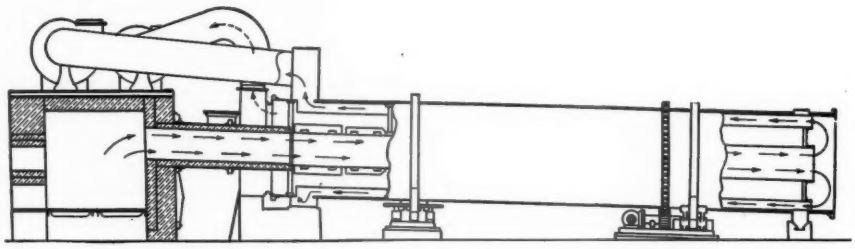
6 The plant is now working at top speed. Valuable time was saved... and very valuable rubber and equipment conserved. United States Rubber Company representatives and engineers are always on call... ready to step into the breach.

RUBBER COMPANY

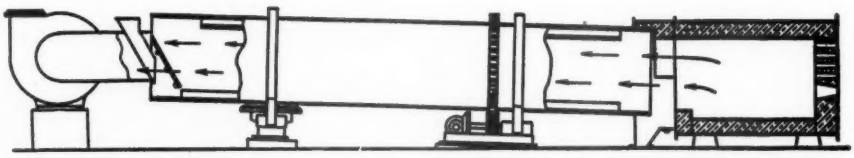
For Your Sand Drying Problem



The class "XA" Ruggles-Coles Semi-direct heat Dryer has a high thermal efficiency giving the lowest fuel cost. It is applicable over a wide range of sand drying requirements.



For extremely fine sand without contamination from combustion gases and with minimum dust the "XB" type indirect dryer is used.



When fuel economy is not a prime consideration or subsequent processing requires dry sand at high temperatures and many other requirements, the "XF" type counterflow or parallel flow Dryer is preferred.

Write for Bulletin 16-C

We also manufacture Hydro-Classifiers, Scrubbers, Thickeners, Rod, Ball and Pebble Mills for the production and preparation of sand.

HARDINGE

COMPANY, INCORPORATED - YORK, PENNSYLVANIA

122 East 42nd Street, New York, N. Y.
205 West Wacker Drive, Chicago, Illinois
501 Howard Street, San Francisco, California
200 Bay St., Toronto, Ontario, Canada

Which TYPE *of* V-Belt
Best Fits *YOUR* Need?

– *Special* **Synthetic** *Belts?*

– **Steel Cable** *Belts?*

– **Rayon-Cord** *Belts?*

– **Standard** *Vulco Ropes?*

Phone Your Gates Field Engineer–
He Will Tell You!

If you have a drive on which a V-belt of special type may be required for greatest service efficiency, you will almost certainly find that Gates has long been building a V-belt precisely engineered to fit your needs.

In some installations, a V-belt whose tension member is composed of rayon cords will have advantages over the standard cotton cord construction. Gates has been building rayon-cord belts since 1939.

Again, Gates engineers have found that a belt built with flexible steel cables as the tension member is sometimes most economical despite its higher initial cost—and Gates has been building flexible steel cable V-belts since 1935.

For five years, the Gates synthetic rubber belt has been piling up amazing service records in large industrial plants all over the United States. Under severe conditions of heat and oil, the Gates special synthetic belt actually outwears any natural rubber belt by as much as 230%.

It might seem that it would be some trouble to determine whether a synthetic-rayon, a synthetic-steel-cable, or a standard Gates Vulco Rope would be most efficient and economical for your particular application. Actually, this involves no more than picking up your phone.

There is a Gates engineering office in every large industrial center. The Gates field engineer who consults you in answer to your phone call is thoroughly competent to analyze any drive problem you may have. He is completely informed on the nature and advantages of every type of belt. He will always recommend the practice that will be most efficient and economical for you.

438

THE GATES RUBBER COMPANY
Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
NEW YORK CITY 215-219 Fourth Avenue
ATLANTA, GA. 738 C. & S. National Bank Building
LOS ANGELES, CAL. 2240 East Washington Boulevard
DENVER, COLO. 999 South Broadway
DALLAS, TEXAS 2213 Griffin Street
PORTLAND, ORE. 333 N. W. 5th Avenue
SAN FRANCISCO, CAL. 1090 Bryant Street

There are three forces constantly at work to destroy wire rope in use,—(1) wear, (2) fatigue and (3) corrosion. The use of LUBRIPLATE 130-AA as a wire rope lubricant has proven so effective in combatting them that rope manufacturers are recommending it for the toughest rope jobs.

LUBRIPLATE 130-AA has enormous film strength and adhesiveness. Hence it is not squeezed out under the terrific wire rope internal pressures. It is impervious to water, moisture and most industrial fumes. LUBRIPLATE therefore prevents rust and corrosion. By doing a better lubrication job LUBRIPLATE permits the strands and wire to work with minimum friction which materially reduces one of the causes of wire fatigue.

These claims for LUBRIPLATE are backed up by unsolicited testimonials of wire rope users who say that it has licked their wire rope problem. LUBRIPLATE lubricants range from the lightest oils to the heaviest greases. Each is an outstanding lubricant that will do a specific job better. Let us send you facts and figures about LUBRIPLATE lubricants. Write today.

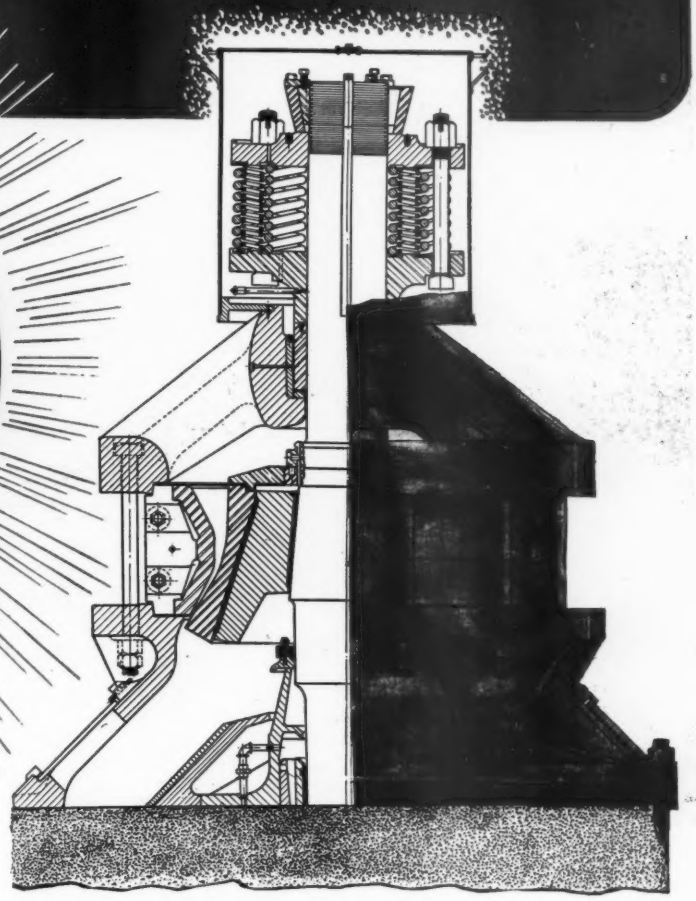
LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
NEWARK, N. J. **SINCE 1870** TOLEDO, O.
WRITE FOR THE NAME OF THE DEALER NEAR YOU

KENNEDY CRUSHERS

POWER FOR CRUSHING—NOT FOR GEARS

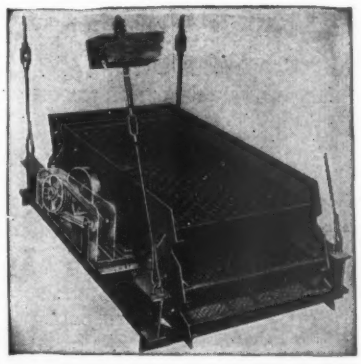
LOW-HEAD • GEARLESS • BALL-BEARING

The only Crusher that gives you high tonnage at low cost



CAPACITIES AND POWER CONSUMPTION AT DIFFERENT SETTINGS

20 Tons per hour at 1/4" for 25 H.P.
45 Tons per hour at 1/2" for 40 H.P.
120 Tons per hour at 3/4" for 60 H.P.
156 Tons per hour at 7/16" for 75 H.P.



Kennedy Vibrating Screens are made in a wide variety of sizes, single or multiple decks to meet any screening requirements. Action on screen cloth positive, and vibration not transmitted to supporting members. Positive eccentricity is permanent due to use of concentric shaft and eccentric gyroscopic fly wheel maintaining highest efficiency at all times.

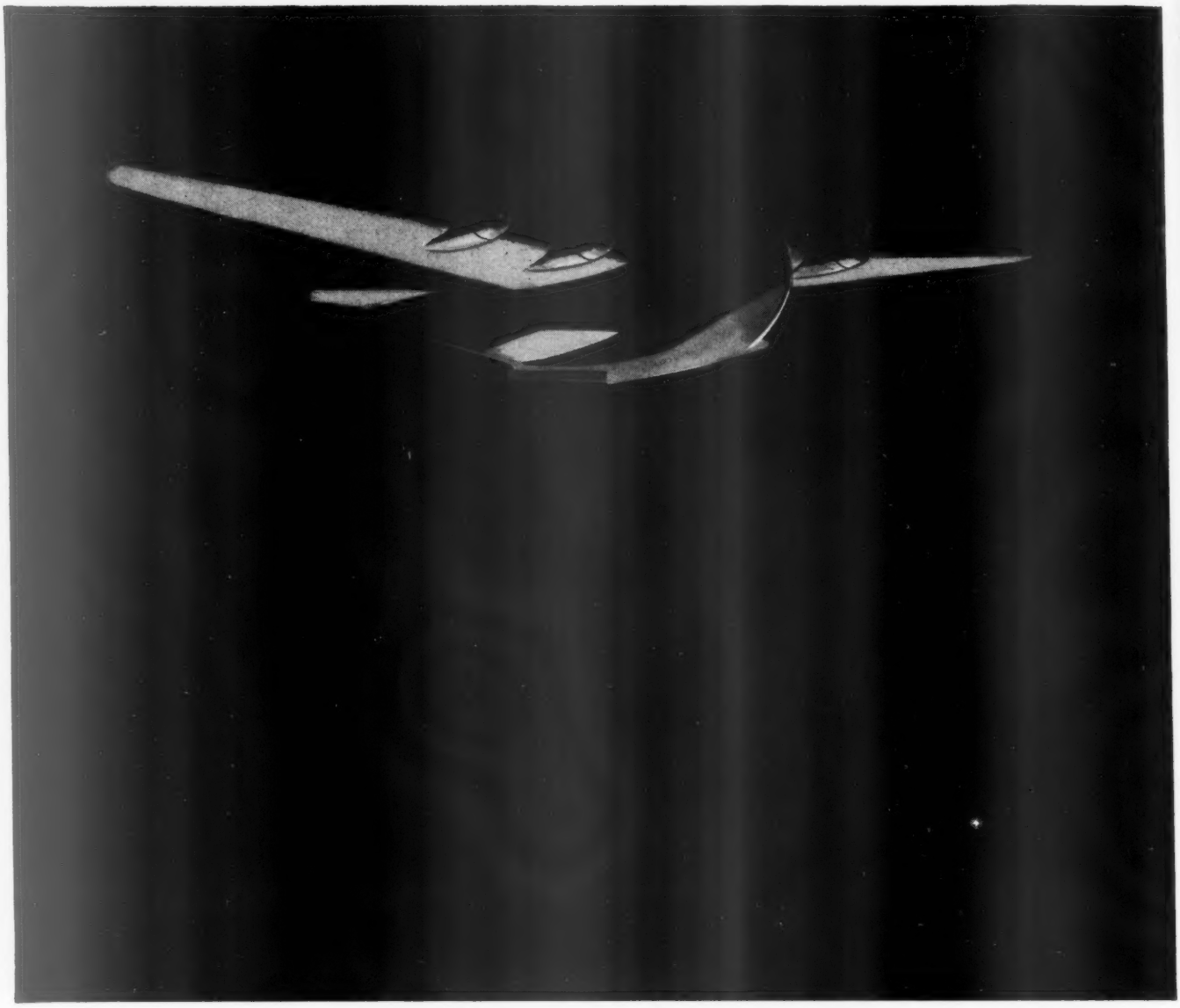
Famous for high production at low cost, Kennedy Crushers are used in the largest crushing plants throughout the world. The Kennedy Crusher is truly the only crusher that gives capacity plus economy. Learn more about Kennedy Crusher performance and savings.

Write for Your Copy of Bulletin 35 Today!

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

2 PARK AVENUE • NEW YORK, N. Y.

Complete line of equipment for lime and cement industry



Clipper pilots have extra eyes

To assist in making night-time landings at the far-flung marine and land bases of Pan American World Airways, every Clipper captain has several "extra eyes"... radio, navigation, wing lights — and a piercing, dependable beacon light.

The big Diesel generators that pump power to these street lamps of the sky are the Clipper stations' nerve centers. They supply electricity for work shops, kitchens and living quarters — as well as illumination. They must be kept going at top efficiency night and day. To make sure they do, Pan American lubricates its Diesels with RPM DELO.

RPM DELO frequently doubles the time between Diesel overhauls. It ends ring-sticking, protects bearings against corrosion, cuts ring and liner wear to the thinnest minimum. No other lubricating oil gives your Diesels the protection they get from RPM DELO— because no other compounded oil combines its ring-cleaning, non-corrosive and anti-oxidant properties.

ORDER RPM DELO FOR YOUR DIESELS

RPM DELO is marketed under these names:

RPM DELO
Caltex RPM DELO
Kyso RPM DELO
Signal RPM DELO
Sohio RPM DELO
Imperial-RPM DELO
CONCENTRATE

Ask your Diesel engine manufacturer or distributor for the RPM DELO supplier in your vicinity

STANDARD OIL COMPANY OF CALIFORNIA

ST. REGIS VALVE PACK SYSTEMS SAVE DOLLARS AND MAN-POWER

Two operators pack 3,760 lbs. of cement per minute using two four-tube St. Regis Packers and St. Regis Multiwall Valve Paper Bags . . . the bags *custom*-built of St. Regis specification Kraft paper. This production is made possible by the speed of the Packer and the automatic closing of the valve.

The maximum in packaging efficiency and economy and the certain protection of the product in transit and in storage are attained with the St. Regis Valve Pack System. Starting with the making of rugged Kraft paper and carrying through to the manufacturing and installing of Valve Bag Packing Machines, St. Regis Paper Company specialists are thoroughly conversant with every phase of the packaging of rock products. Experienced field engineers are in constant touch with conditions in the field, and machines are available for immediate installation.

St. Regis
MULTIWALL
PAPER BAGS

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

TAGGART CORPORATION • THE VALVE BAG COMPANY

NEW YORK: 230 Park Avenue

CHICAGO: 230 No. Michigan Avenue

BATES VALVE BAG CO., LTD.
Montreal, Quebec
Vancouver, B. C.

Baltimore, Md. Birmingham, Ala. Dallas, Tex. Denver, Colo.
Los Angeles, Calif. New Orleans, La. Seattle, Wash.
Franklin, Va. Nazareth, Pa. San Francisco, Calif. Toledo, Ohio

Instantaneous Dumping... High Speed Loading...

PROVIDE ESSENTIAL WAR SPEED

When war speed is essential Koehring Dumptors have the potential power to provide it. Easy operation . . . plenty of dependable horsepower . . . and instantaneous dumping are a few of the features required in high speed hauling. Instantaneous gravity dump saves time as well as repair costs. Wide body top opening saves time when loading. War construction demands speed and Koehring Dumptors are constant performers where speed is essential.

KOEHRING COMPANY
Milwaukee, Wisconsin

Depend on your Koehring distributor to help you keep your equipment operating. Care for your Koehring equipment NOW, so it will serve you tomorrow. Koehring distributors have genuine Koehring parts. Koehring parts warehouses are at your service.

KOEHRING HEAVY DUTY

HEAVY-DUTY CONSTRUCTION EQUIPMENT

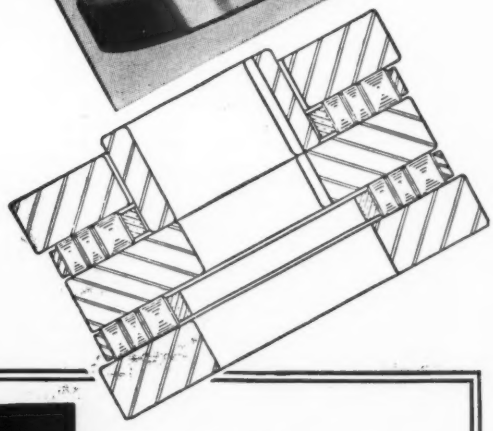
Especially for **THRUST** *Bearings . . .*

ROLLWAY'S *Right Angled* LOADING *is the* RIGHT LOADING

The speed, oscillation, direction and repetition of stresses are as important as total stress magnitudes, when it comes to designing anti-friction bearings. Even the smallest of thrust stresses—if applied often enough to a bearing already carrying a radial load—will cause failure or excessive wear on the bearing race. That's why it's important not to lump thrust loads onto bearings designed for radial stresses.

Rollway's Right-Angled Loading Gives Thrust Bearings Higher Capacity and Longer Life

By loading all bearings at right angles to the roller axis, Rollway splits compound loads into two simple components. Thrust bearings carry only pure thrust. Radial bearings carry only pure radial. Result is an increase in life expectancy for both bearings, plus greatly increased carrying capacity for either load in a given dimensional limit. Oblique resultants that bedevil stress analyses are banished. You get more careful engineering of the bearing to the job, more economical use and distribution of materials in the structure of the machine.



- A wide range of types in SAE and Americn Standard Metric Sizes are available for most requirements, eliminating the cost and delay of special patterns and tools. Let Rollway "know how" aid you in a proper choice.

For longer bearing life, more efficient performance and more economical maintenance . . .

FOLLOW THIS BASIC BEARING PRINCIPLE

- All radial loads carried at right angles to the roller axis.
- All thrust loads carried at right angles to the roller axis.

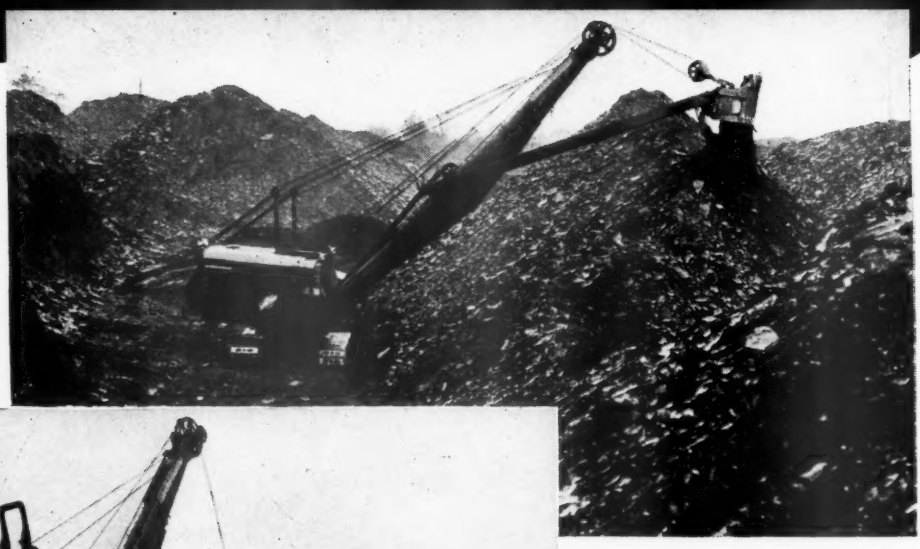
ROLLWAY BEARING COMPANY, INC., SYRACUSE, NEW YORK

BUILDING HEAVY-DUTY BEARINGS SINCE 1908 **BEARINGS**

Speeding production of the Nation's wartime fuel supply

PMCO WELDED DIPPERS

give greater daily output to this MANITOWOC SHOVEL in Ohio coal fields



● The 2-yard PMCO Welded Dipper on this Manitowoc Model 3500 stripping shovel, actually weighs 600 lbs. less than a 1¾ yard solid cast type dipper. It gives 14⅓% added payload capacity to the shovel and the 600 lbs. saving in burdensome dipper weight makes possible speedier operation of the 45 ft. boom and 34 ft. dipper stick.

● PMCO Welded Dippers have built in, reinforced strength for continuous digging in hard material. Note the teeth marks in this hard bank of overburden.

● 2 yard PMCO Welded Dipper

	Empty Dipper Weight	Loaded Dipper Weight	Net Pay Load	Increase of Payload	Increase Percentage
2 yd. PMCO Welded Dipper	4100 lbs.	9500 lbs.	5400 lbs.	675 lbs.	14⅓%
1¾ yd. Solid Cast Dipper	4700 lbs.	9475 lbs.	4725 lbs.		

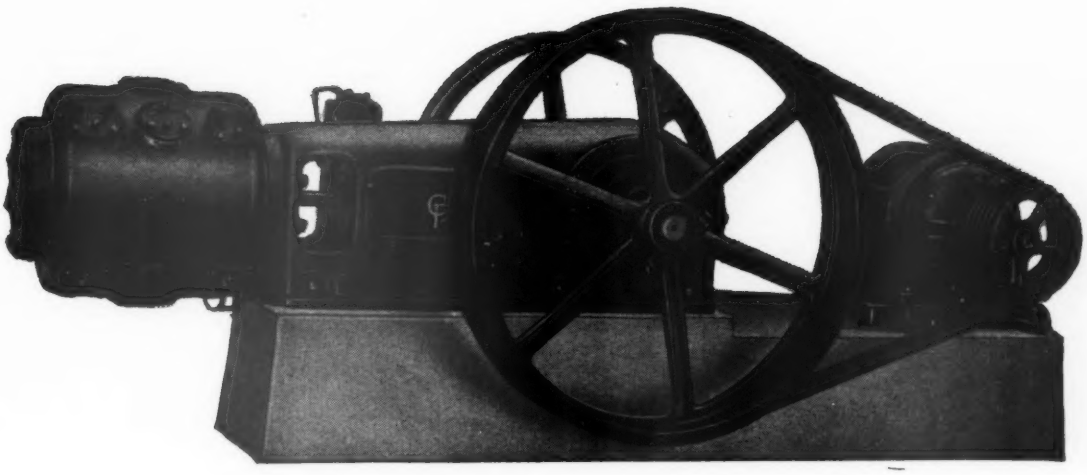
We operate the largest and most complete manganese steel foundry in the United States.

PETTIBONE MULLIKEN CORPORATION

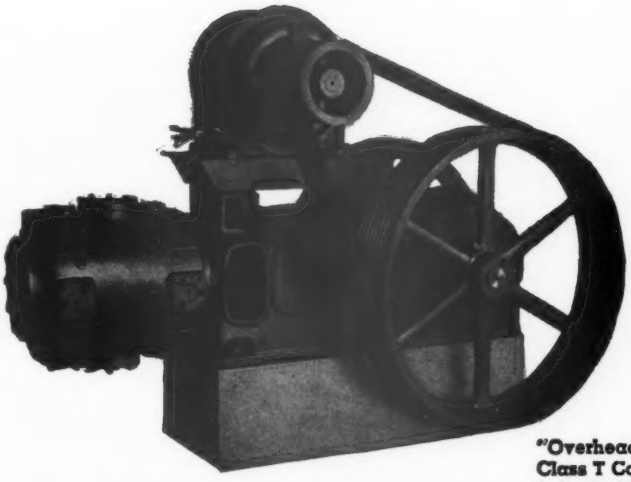
Established 1880

4710 West Division Street, Chicago, Illinois

A Heavy Duty COMPRESSOR
FOR TWENTY-FOUR HOUR SERVICE



Available For Quick Deliveries



"Overhead "V" belt drive ideally adapts Class T Compressor for use where space is limited."

Chicago Pneumatic Class T Compressors are built in a wide range of sizes . . . 15 to 125 h.p. . . . in single or multi-stage designs . . . for pressures up to 5,000 pounds . . . "V" belt, synchronous motor or steam drive. Also available with "Oilless" cylinder for use where compressed air must be free of oil. Send for Bulletin 728.

★★★★★★★★
PNEUMATIC TOOLS
ELECTRIC TOOLS
(Hicycle...Universal)
ROCK DRILLS

CHICAGO PNEUMATIC
TOOL COMPANY
General Offices: 8 East 44th Street, New York 17, N. Y.

★★★★★★★★
AIR COMPRESSORS
VACUUM PUMPS
DIESEL ENGINES
AVIATION ACCESSORIES

The PYRAMID BUILDERS were PIKERS!

Cedarapids

Built by IOWA

IT took them 20 years and a hundred thousand men to toss the equivalent of a million and a half cu. yds. of aggregate into the great pyramid of Cheops — and that is still considered a big job. If the country had to wait that long for material for airports, fortifications, strategic roads and other jobs equally as Herculean as the pyramids, the war never would be won.

The Pyramid builders were pikers! The Cedarapids plant of Henry Stafford alone with its small crew is equalling this yardage in less than 2½ years. In 288 days, less than nine months and in spite of several moves this plant alone turned out over half a million cu. yds. of minus 2 in. material on airport work and reached an output of 4688 cu. yds. of minus 2 in. material in one day.

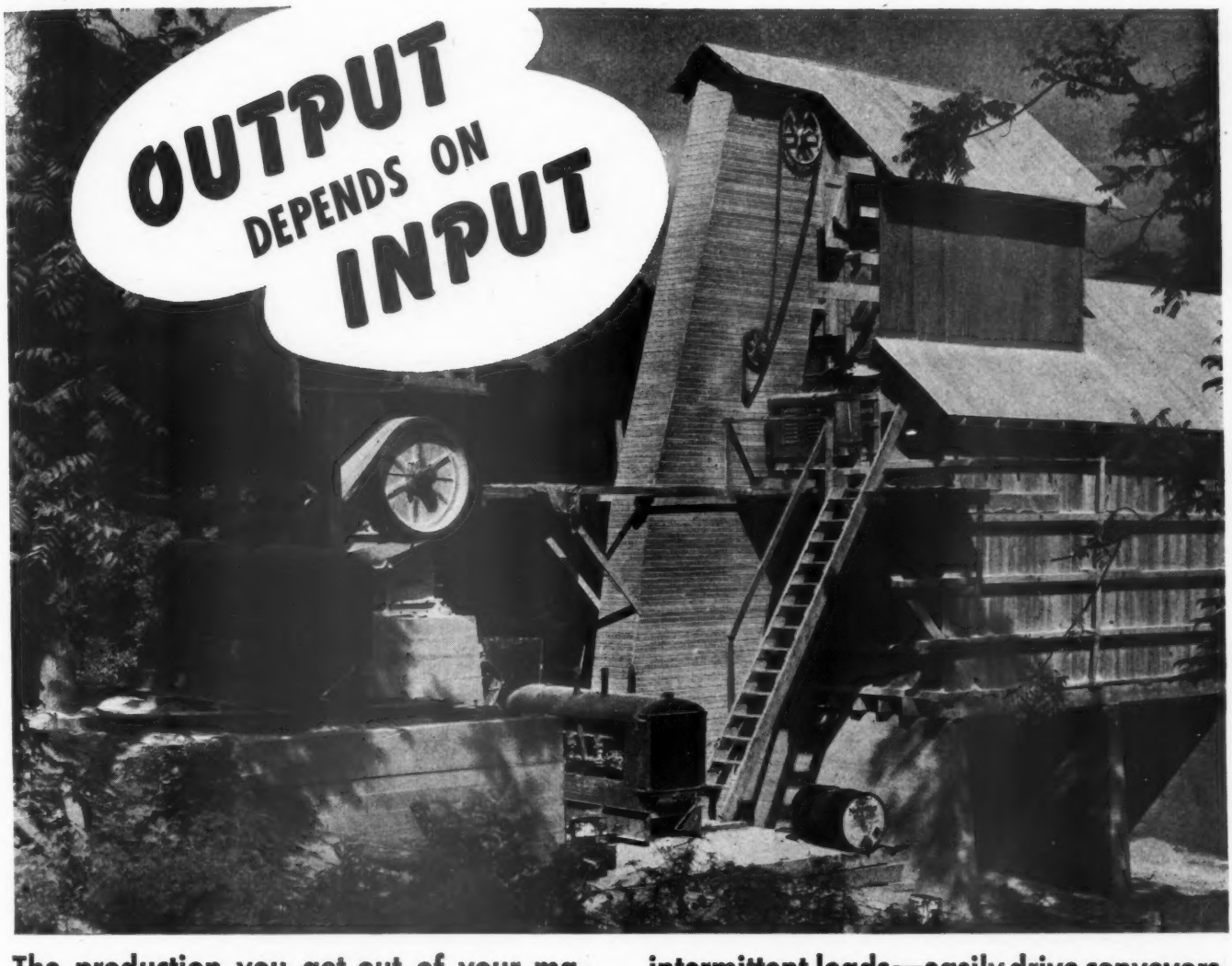
This plant is an outstanding example of Cedarapids portability. All units are on rubber, including conveyors and the receiving hopper is only 9 ft. above the ground — materially facilitating feeding.

Whether it's winning a war or a peace time job, construction begins with aggregate, and when *time* and thousands of dollars worth of labor and other equipment depend on the aggregate plant you have to have dependability and *output* fast and at low cost.

Iowa Cedarapids plants — both large and small have been proved under both peace time and war time conditions. Come to Headquarters for aggregate producing and handling equipment.

IOWA MANUFACTURING COMPANY
Cedar Rapids Iowa

OVER ½ a Million tons in less than nine months from one CEDARAPIDS Crushing Plant for HENRY STAFFORD
Lamesa, Texas



The production you get out of your machines depends largely on the kind of power you use to drive them. A machine is no better than the engine that powers it. That's why it is so important to use reliable power that performs consistently shift after shift . . . day after day . . . with minimum time out.

Backed by nearly 100 years experience in the manufacture of industrial power equipment, Allis-Chalmers Power Units have a long established reputation for dependability. They provide smooth, steady performance on heavy pulls or intermittent loads—easily drive conveyors, pumps, screens, shovels, hoists, draglines, air compressors, roll or jaw crushers, and many other units.

Priced lower than engines of comparable displacement and horsepower . . . they give you more horsepower per dollar invested. Neat and compact in design, self-contained and protected from the elements, they are available with various accessories to meet quarry conditions. A variety of sizes to fit every power requirement. Parts and replacements obtainable everywhere! Choice of fuels! Get all the facts . . . NOW!

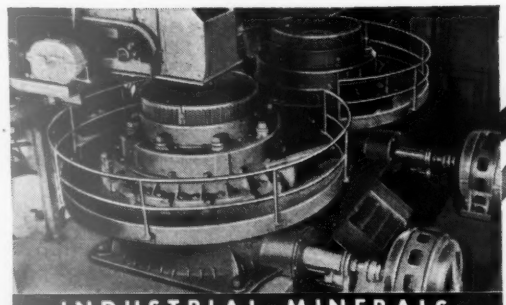
DESCRIPTIVE LITERATURE SENT ON REQUEST

POWER UNITS 5 SIZES 15 to 110 B.H.P.

★ GASOLINE ★ DISTILLATES ★ NATURAL GAS ★ BUTANE

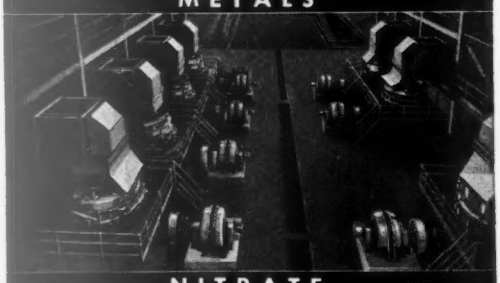
ALLIS-CHALMERS

TRACTOR DIVISION · MILWAUKEE · U. S. A.

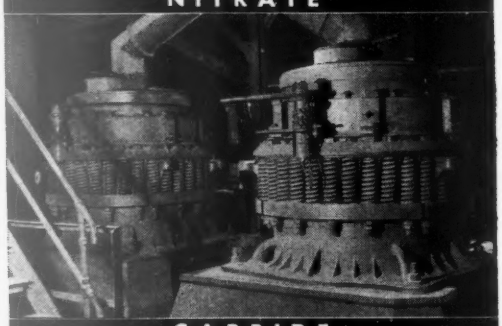


INDUSTRIAL MINERALS

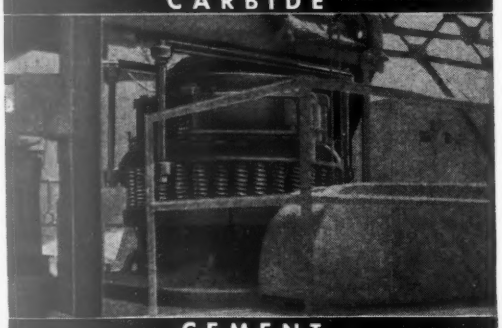
METALS



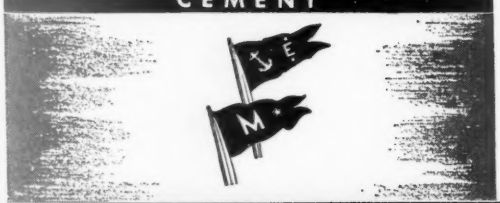
NITRATE



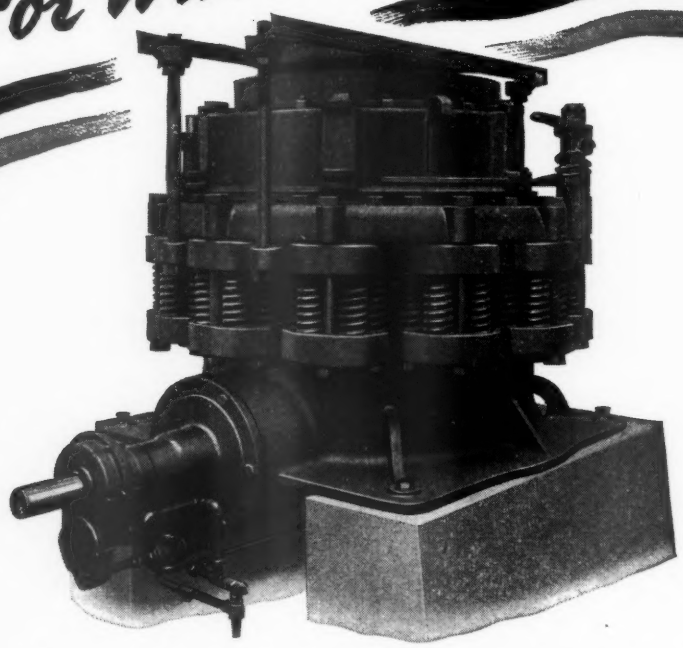
CARBIDE



CEMENT



Finer Crushed Materials For Wartime Needs . . .



Increased production of many of our vital wartime materials is dependent on the performance of the Symons Cone Crusher. The ability of the Cone to deliver a finer crushed product in greater quantity is being demonstrated in the production of many metals and industrial minerals so essential to the prosecution of the war. If your operations involve fine crushing, investigate the merits of this unusual crusher.

NORDBERG MFG. CO.
MILWAUKEE WISCONSIN
NEW YORK · LOS ANGELES · LONDON · TORONTO

NORDBERG MACHINERY

SYMONS CONE CRUSHERS

GILSON PULVERIZERS

in the limelight

OF ESSENTIAL PRODUCTION

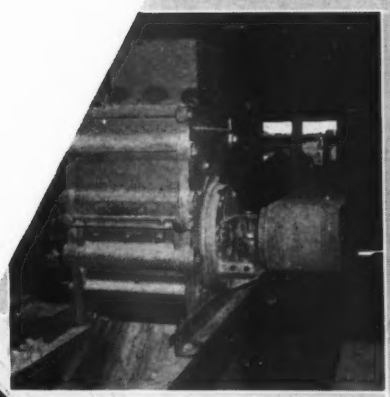
MOST ACCESSIBLE PULVERIZER

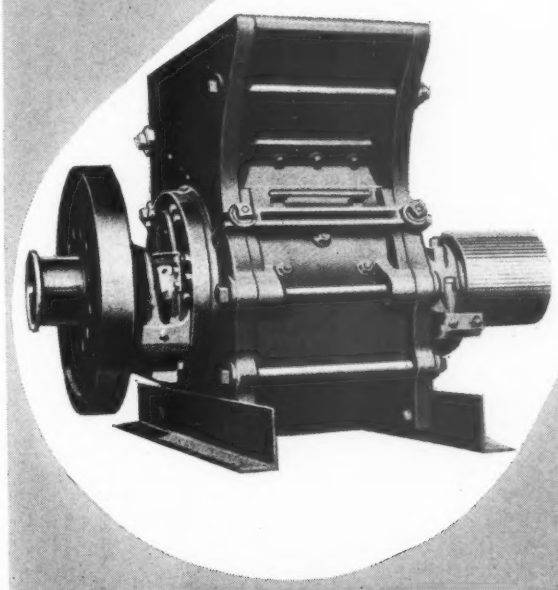
LOW MAINTENANCE COST

STRONG CONSTRUCTION

LOW POWER COST

HIGH CAPACITY





Today's big job is the production of agstone for the "Farm Front."

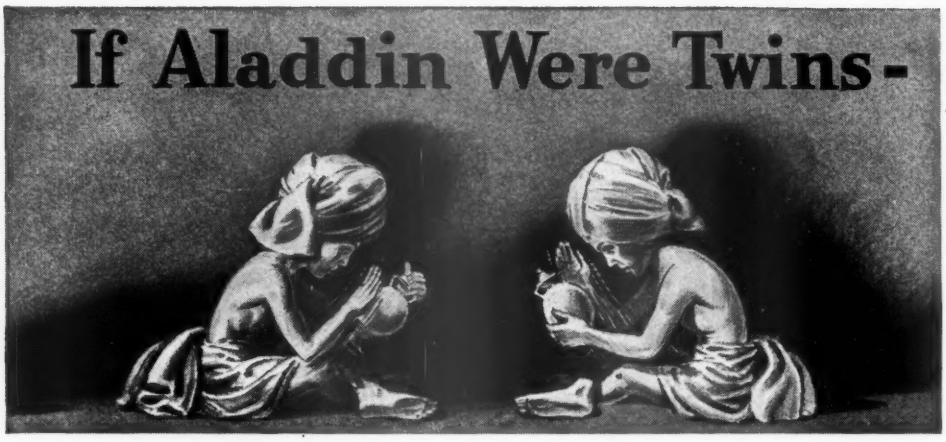
To insure continuous high capacity, Manteno Limestone Company has installed a powerful GILSON No. 22 Pulverizer* in their recently modernized Illinois plant for "quantity-quality" limestone grinding.

This unit, like all GILSON machines, is superbly designed and durably built to give trouble-free, profitable service not only "for the duration" but for life.

*A second GILSON pulverizer has since been ordered.

Write for Booklet

GILSON BROTHERS COMPANY
FOUNDRY & MACHINE WORKS
FREDONIA, WISCONSIN



He Could Not Equal the Miracles of Industrial Synergism

Yes, industrial synergism is the name for it. Where Aladdin rubbed his lamp to evoke the fantasies of legend, men now rub ideas against ideas to create realities far in excess of the sum total of the ideas expressed. The stimulus of men thinking together—defined as SYNERGISM—produces the modern magic of progress.

Usually synergism starts with the little ideas put together to result in plus values that sometimes are amazing.

Synergistic thinking in quarrying converts little problems into big helps.

For example, synergism between Atlas representatives and the customer produced these "2+2=5" results:—

Here, the quarry permitted truck driving along the top. By improvising a new back with a small chute door, the truck was fitted for efficient, effective stemming. How it saves on large blasts! Note how the board is held to protect blasting cap wires. Obvious? Sure—but it is a new slant.

Here, a bit of salvaged copper wire and a piece of rope have been turned into a time-saving gadget for lowering gelatins down smooth bore holes. Wire is bent and works just like a pair of ice tongs. When the cartridge is seated, a jerk on the rope tears the "tongs" free to be used again. Simple? Of course—but a tremendous time saver.

Atlas is always ready to help out on customers' blasting problems to get more tons of rock per dollar of cost. That is the big idea, after all. Call in Atlas for some synergistic thinking on your next project.

ATLAS EXPLOSIVES
"Everything for Blasting"

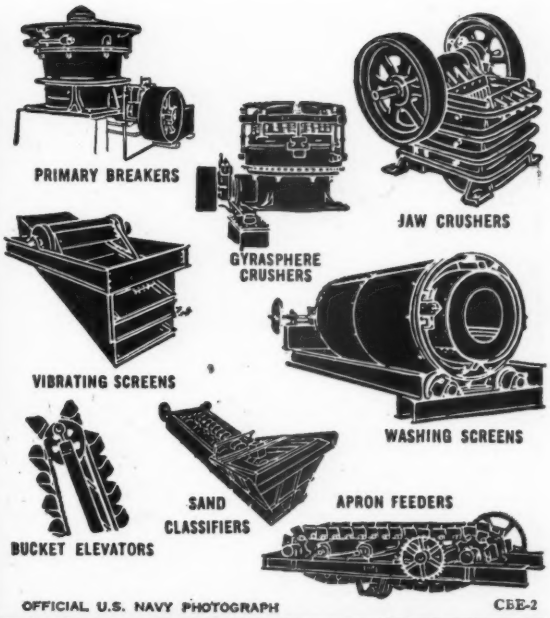
CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. · Offices in principal cities · Cable Address—Atpowco

"ALL ROADS LEAD TO ROME..."

and Berlin... and Tokyo

IT'S THE NAVY'S SEABEES serving alongside combatant forces, who are literally paving the roads to victory. Here we see them on an island in the South Seas. That may be an airplane landing strip they're building . . . or an access road. They're using crushed coral rock. And it's just possible it was crushed by a Telsmith Crusher. The Seabees *are* using a lot of Telsmith equipment *and that's a fact.* Most of Telsmith's output now goes to the Navy—to build Naval bases, docks, various shore structures and facilities overseas. *Get Bulletin E-15.*



OFFICIAL U.S. NAVY PHOTOGRAPH CBE-2

TELSMITH *Equipment*

FOR SAND, GRAVEL, ROCK CRUSHING PLANTS

SMITH ENGINEERING WORKS, 504 EAST CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Addresses: Sengworks, Milwaukee—Concrete, London

Room 1604—50 East 42nd St. New York City
211 W. Wacker Drive Chicago, Ill.
713 Commercial Trust Bldg. Philadelphia, Pa.
19-21 Charles St. Cambridge, Mass.
G. F. Seeley & Co. Toronto, Ont.
Mines Eng. & Equip. Co. San Francisco—Los Angeles
Brandeis M. & S. Co. Louisville, Ky.
Charleston Tractor & Eqpt. Corp. Charleston, W. Va.
Roanoke Trac. & Eqpt. Co. Roanoke, Va.
Clift L. Priester 911 S. 3rd St., Memphis, Tenn.
Wilson-Weesner-Wilkinson Co. Knoxville and Nashville, Tenn.

Change to TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines.
- Low Pressure Steam and Air Lines.
- Steam and Diesel Exhaust Lines.
- Vacuum and Suction Lines.
- Blower Piping.
- Sand and Gravel Lines.
- Industrial Gas Lines.
- Oil and Gas Gathering Lines.
- Swing Pipe.
- Spray Pond Piping.
- Hydraulic Mining.
- Dredge Lines.

"Over-designing" is bad practice, too!

EVERYONE knows that it's dangerous to "under-design" where piping and pressure vessels are concerned. But let's be consistent and admit that "over-design" is bad practice too—that providing weight and strength which serve no useful purpose just isn't good engineering.

Rarely if ever is the mistake made of using pipe that is too light for safety, for when conditions are severe, strength requirements are calculated with commendable care. A mistake that often is made, though, is using too-heavy pipe for the ordinary run of low and moderate pressure services. The mistake, in short, of using Standard Thickness Pipe for *every* service that doesn't require something heavier.

As a matter of fact, it's a pretty good bet that Taylor Spiral Pipe could handle adequately, with strength and service-life to spare, a large percentage of the working pressures carried in *your* plant —that its use would represent sound engineering and good design.

And when it comes to economy—well, the installed cost of Taylor Spiral Pipe is often no more than half that of the heavier pipe it so well replaces.

Switching to Taylor Spiral Pipe for services like those listed here is made practical by the range of sizes and variety of fittings. Thicknesses range from 18 to 6 gauge; joint lengths to 40 ft. All types of end joints, all kinds of fittings and "specials" or fabricated assemblies are produced, providing a complete service with undivided responsibility.

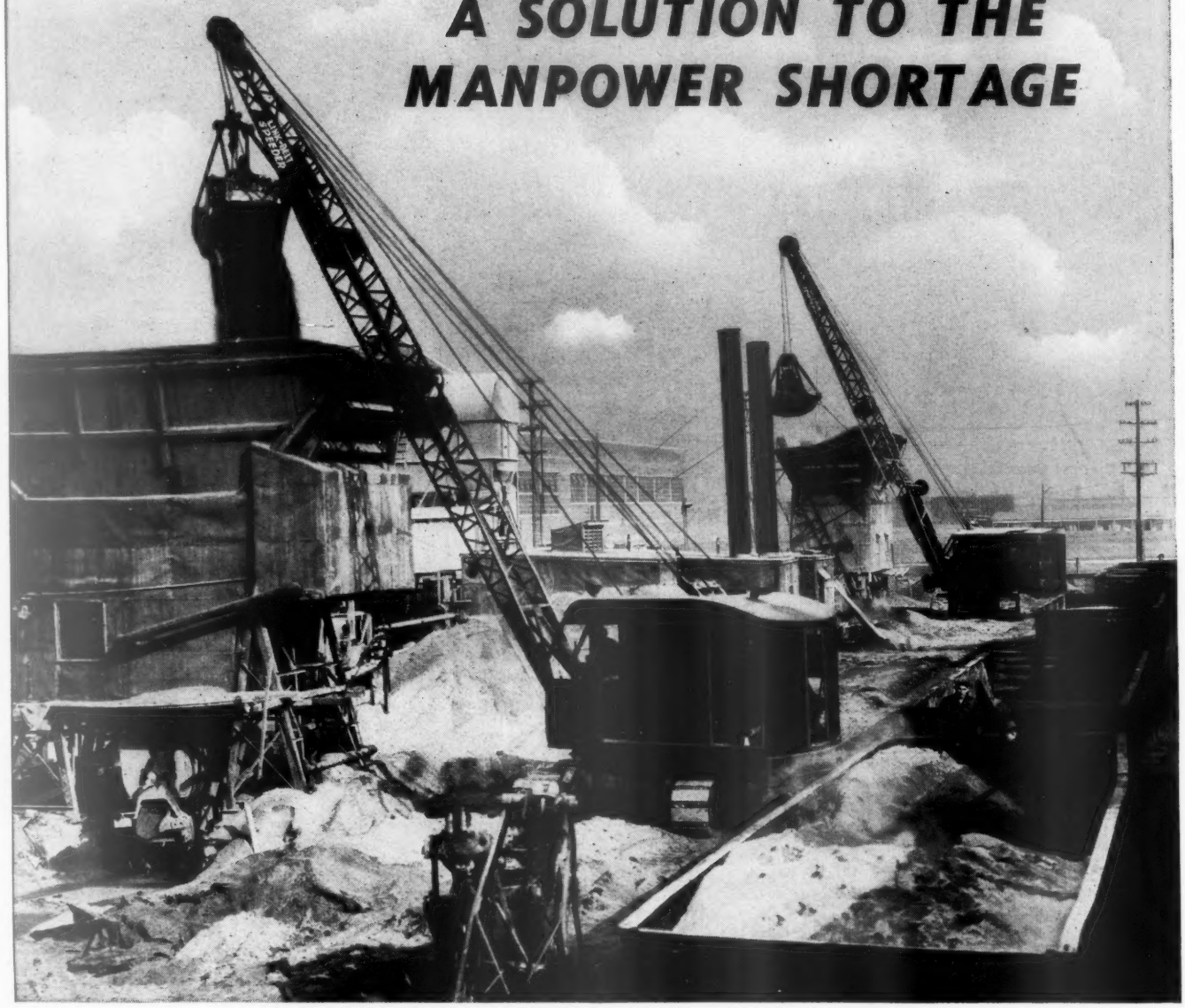
TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485
NEW YORK OFFICE: 50 CHURCH ST. • PHILADELPHIA OFFICE: BROAD STREET STATION BLDG.

TAYLOR *Spiral* PIPE

THE WAR COULD BE LOST RIGHT HERE!
Lost yardage in raw materials could mean a lost cause. To guard against such a catastrophe, many of the Nation's open pit ore and coal producing mines rely on MARIONS to maintain top output. The amazing production figures released recently on tanks, planes and guns speak well for MARION'S performance. Everywhere, MARIONS are working for Victory.
THE MARION STEAM SHOVEL CO. ★ MARION, OHIO
MARION
SHOVELS ★ DRAG LINES ★ CLAM SHELLS
CRANES ★ PORTAL CRANES ★ WALKERS
WORKING FOR VICTORY: DIGGING — Coal • Magnesium • Iron Ore • Copper Ore • Bauxite • Manganese • Nickel • Molybdenum • Sand & Gravel • Clay MATERIAL HANDLING — Shipbuilding and Cargo Loading BUILDING — Airports, Ordnance Plants, Arsenals, Army Camps, Marine Bases, etc.
MARION TYPE 4161
4161
FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

LINK-BELT SPEEDER—

A SOLUTION TO THE MANPOWER SHORTAGE



Speedy finger-tip control, added strength, greater mobility and rapid booming assure you efficient day-in, day-out performance. These time and trouble-saving Link-Belt Speeder features are helping contractors overcome many war-time construction problems. The job doesn't come that's too tough for a Link-Belt Speeder—because there's a model to fit every type of job.

THE MORE BONDS YOU BUY—THE SHORTER THE WAR!!

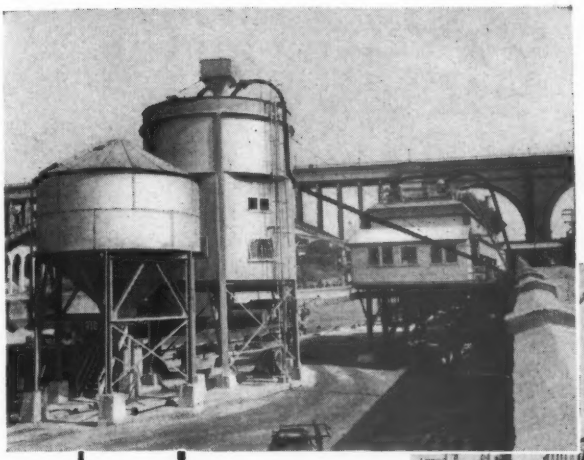
9156

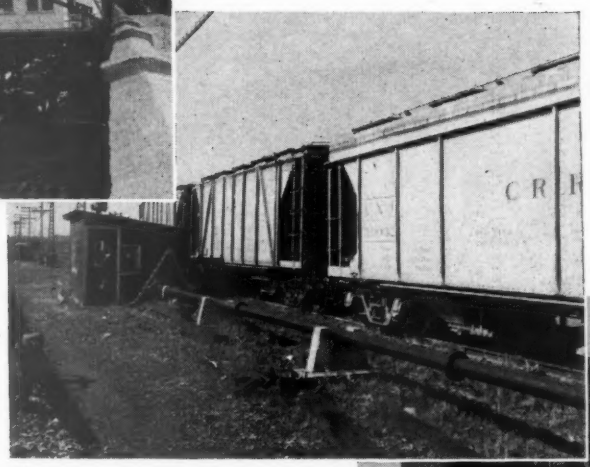
LINK-BELT SPEEDER

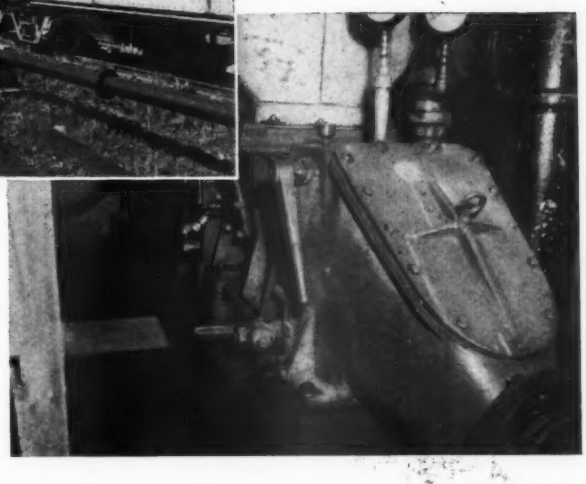
BUILDERS OF THE MOST COMPLETE LINE OF

SHOVELS— CRANES— DRAGLINES

LINK-BELT SPEEDER CORPORATION, 301 W. PERSHING ROAD, CHICAGO, ILL.
(A DIVISION OF LINK-BELT COMPANY)







Conveying cement from hopper-bottom cars to ready-mix concrete plant. Conveying distance 700 feet. Upper left: Ready-mix plant, showing transport lines entering storage bins. Center: Hopper-bottom cars "spotted" over Fuller-Kinyon Pump (right) in pit underneath tracks.

CONVEY THE FULLER-KINYON WAY

MATERIALS CONVEYED BY FULLER-KINYON SYSTEMS

- Arsenic dust
- Asphalt filler dust
- Bag fume
- Baroid
- Barytes
- Catalyst
- Cement (Portland)
- Cement raw materials
- Clays (dried)
- Colox
- Copper converter dust
- Dextrine
- Dolomite
- Fuller's earth
- Gypsum (raw)
- Lime (quick)
- Magnesite
- Manganese Dioxide
- Ore (pulverized)
- Rock dust
- Siliceous Powder
- Starch (Pearl)
- Starch (Powdered)

Handle your dry pulverized materials safely through pipe lines . . . up-hill, down-hill, horizontally or vertically, overhead or underground . . . anywhere a pipe line can be run. Clean, explosion proof conveying . . . no dust nuisance.

Fuller-Kinyon Systems convey to or from box or hopper-bottom cars, ships, barges, silos and bins.

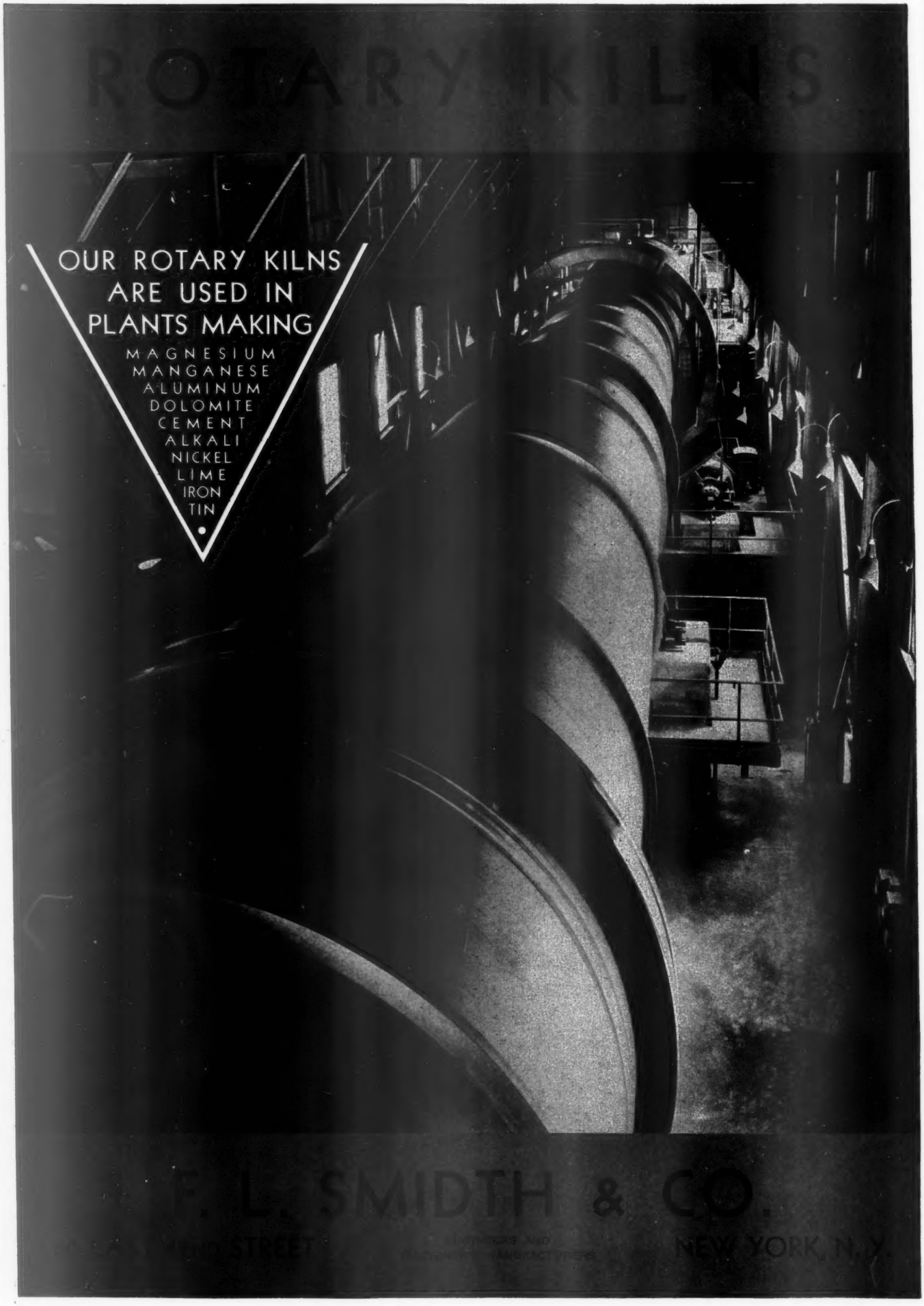
Power requirements are low. Substantial savings compare with mechanical conveyors on average conveying distances. Savings increase as distances increase. Maintenance costs are negligible.

Consult us when next you have a conveying problem. Our engineering department is at your service.

P-60

FULLER COMPANY-CATASAUQUA, PA.

CHICAGO Marquette Bldg. | WASHINGTON, D.C. Colorado Bldg. | SAN FRANCISCO Chancery Bldg.


ROTARY KILNS
OUR ROTARY KILNS
ARE USED IN
PLANTS MAKING
MAGNESIUM
MANGANESE
ALUMINUM
DOLOMITE
CEMENT
ALKALI
NICKEL
LIME
IRON
TIN
F. L. SMIDTH & CO.
NEW YORK N. Y.

There's room for only

One Sun

THE barbaric Jap who rules by the bayonet is having his brief day of power over your Philippine land. This power, which reached its peak through shameful treachery, is on its way down. It will fail as surely as the bloody, dishonored sun-flag and the 30,000 Japs who sank beneath the Bismarck Sea!

We are one with you, Philippine brother, in the resolve that only one kindly sun shall remain above the Pacific. We are working and fighting toward that certain day.

As our forces fight, we work to give them weapons — tanks, planes, guns, ships. The materials to make these, every ton, must be won from the earth by determined men in mine and quarry. Their greatest weapon, in turn, is explosive force safely set free by Ensign-Bickford Safety Fuse and Primacord-Bickford Detonating Fuse. We manufacture this fuse with skill and care and pride—mindful of our responsibility to mining men, for *Victory Begins Underground!*

H-P

THE ENSIGN-BICKFORD CO.
SIMSBURY, CONNECTICUT

Primacord-Bickford
Detonating Fuse

PIT AND QUARRY

Vol. 36 AUGUST, 1943 No. 2

CONTENTS

Editorial: Material Demands After the War . . 36
News of the Industry 39
Federal Trade Commission Ends Basic-Point Pricing 42
Washington News Letter 44
The Victory Program—and Your Business 45
Magnesium—Critical War Material 49
Long-Idle Plant Back in Service 54
Big Construction Program Seen as Key to Post-War Prosperity 55
Recent Research Developments in Field of Cement, Concrete 56
General, Acme Furnish Crushed Stone for West Virginia Reservoir Project 57
Cement Dispersion 75
New Ramp-Loaded Plant Cuts Production Costs 76
Seattle Gravel Firm Acquires Extensive Ready-Mix Business 77
Tips on Maintenance for Ready-Mix Operators — IV 78
Ohio Material Dealer Erects Own Plant and Shares in War Demand 81

Personal Mention 62
Traffic News Digest 64
Legal Decisions 66
New Machinery and Supplies 70
Trade Literature 71
Trade Notes 72
Recent Patents 72

MEMBER AUDIT BUREAU OF CIRCULATIONS

PIT AND QUARRY IS INDEXED IN THE ENGINEERING INDEX

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel and other nonmetallic minerals. Copyrighted 1943 by Complete Service Publishing Co., 538 S. Clark Street, Chicago 5, Ill.

H. W. BAUMGARTNER
President

STANLEY A. PHILLIPS
Vice-President and Directing Editor

Senior Field Engineering Editor:
W. E. TRAUFFER

Field Engineering Editor:
HARRY F. UTLEY

Eastern Field Engineering Editor:
SPENCER JONES

Secretary:
W. T. KLUSSMAN

General Manager, Field Contracts:
JAMES E. MONTGOMERY
Telephone HARrison 8558
Chicago 5, Ill.

Eastern Manager, Field Contracts:
W. A. WILSON
Room 1235, 101 Park Ave.
Telephone CAledonia 5-4438
New York 17, N. Y.

Central Manager, Field Contracts:
D. R. EGBERT
859 Leader Bldg.
Telephone CHerry 4432
Cleveland 14, O.

Western Manager, Field Contracts:
JOHN F. VAN WAY
Chicago 5, Ill.

Pacific Coast Manager, Field Contracts:
ROBERT W. WALKER
68 Post Street
Telephone SUtter 6706
San Francisco, Cal.
and
403 West 8th Street
Telephone VAndike 9348
Los Angeles, Cal.

Circulation Manager:
RAY L. SMITH, JR.

DRYING

GRINDING

SEPARATING

. . . IN ONE OPERATION

A SHORT-CUT METHOD OF *producing* AGRICULTURAL LIMESTONE

Big things are in the making this year for the fertilizer industry.

Record increases in farm production indicate huge demands for agstone and acid phosphate.

★

For years a prime factor in the fertilizer field, Raymond Low Side ROLLER MILLS now are contributing to the efficient production of these essential materials.

★

In making the finer grades of agricultural limestone, where some drying is necessary, the mill handles both operations at once . . . removing the moisture and pulverizing the product to required fineness. It delivers the finished material direct to storage bins.

★

It is equipped with the air separation system, and adjustable for a wide range of classification, from all passing 10-mesh up to 95% through 100-mesh.

★

Low Side Mills are available in capacities from one or two tons per hour, and up to as much as twenty or thirty tons per hour.

They offer extra high tonnage-power ratios in pulverizing limestone and phosphate rock to present-day specifications.

RAYMOND PULVERIZER DIVISION
Combustion Engineering Company, Inc.
1321 North Branch Street Chicago
Branch Offices in Principal Cities
Canada: Combustion Engineering Corp., Ltd., Montreal

RAYMOND

For further details of this economical producer, write for Raymond Low Side Roller Mill. Catalog No. 34.

PULVERIZING, SEPARATING, AIR DRYING AND DUST COLLECTING EQUIPMENT

EDITORIAL

Material Demands After the War

WITH the completion of many of the largest construction projects required by the war and with the stoppage of work on others so that badly needed materials could be made available for more important jobs, it is natural that producers of construction materials should become anxious about the extent of the demand for their products after the close of the war. In many cases the demands placed on their production facilities have already passed their peak, in many others that point is rapidly approaching, while in most of the remaining cases it is evident that the present demand can not continue without abatement.

Because the producers of aggregate and cement constitute not only the major portion of our industries numerically but also from the standpoint of volume of production, little thought may be given to the less numerous branches of this field—the producers of materials that do not enter to the same degree into construction activities. Nevertheless, these, too, are concerned about the future of their businesses; they, too, want to know what their share in the post-war economy will be.

If we as a nation were not faced with a grave shortage of manpower, any considerable diminution in the demand for this industry's products would be viewed with alarm. Since, however, the problem of finding sufficient workers to keep some plants running even on a one-shift-a-day basis has attained ascendency in most producers' minds, the question of where to find outlets for the products of equipment that may be idle for some of the time has been relegated to second place.

No one can ever read the future, so that predictions regarding its nature and effects is one of the least profitable forms of speculation. What will be done after the war, by the public, by industry and by government, is a subject that can not be illuminated by facts, nor can it be defined by guessing. Reasonable men will be content, however, if rational consideration of the problem points the way to a moderately high rate of production activity in the period immediately following the end of hostilities; they should be elated if those reasonable expectations promise demands approaching those created by the war.

For years there has been an increasing lack of attention to the problems of maintenance in all those branches of human activity not directly applicable to the prosecution of the war. One need not drive far to see that highways everywhere are rapidly losing even those qualities that made them only reasonably adequate for pre-war needs. One need not look widely about him to see that large sections of our population are without adequate housing—adequate in the sense of numerical sufficiency as well as in the matter of economic availability. One need not travel far over our railways to know that track maintenance has been allowed to lag, that roadbeds, despite the unheard-of strains being placed upon them, are not being given the physical attention they require. One need not have an unusually wide knowledge of industrial affairs to be aware of the large number of industrial-building projects not connected with the war which have, of course, had to be postponed on account of the more urgent need of the requisite materials for other purposes. One need not be an agricultural expert to realize that the need for liming materials for deficient soils has not been fully met, even though the capacity of those soils is being overtaxed to meet the abnormal crop demands of the war period.

All these things and many others that might be named are obvious, indeed so obvious as to be readily overlooked by those who clamor for statistics. No one can measure these needs, either collectively or individually, because there is no method by which deferred maintenance can be measured. Yet it must be apparent that the supplying of these deficiencies alone will for several years place heavy burdens on those industries which supply the raw materials of construction. It must be apparent, too, that no construction program, however huge or important, can mean anything in the re-establishment of our national economy on a prosperous peace-time basis unless those industries which supply the raw materials required by such a program are first devoted to their production and distribution.

There is scarcely an industry of national importance that does not depend upon the nonmetallic-mineral field for the provision of some vitally necessary raw material. In most minds the construction field looms large as an outlet for its products, because, perhaps, construction activity is visible to most of us in the forms of domestic building, industrial building, public works and highway work. Yet more than thirty different materials produced by this industry go to serve dozens of different industries through the channels of manufacturing, agriculture, metallurgy, distribution and even mining, no one of which can fail to share in the post-war return to peace-time pursuits.

THE post-war market can not be stated with definiteness, it can not be demonstrated by statistics since statistics deal with the past. But the postponed needs of more than 130,000,000 Americans, the unsatisfied wants of that tremendous market in terms of housing, transportation facilities, food production and distribution, and modest comforts, will provide a large market not alone for those who can provide them, but also for those who furnish the raw materials that enter into their manufacture, into the construction of the buildings in which they will be made and into the communication systems—highways and railways—over which they will be distributed. In addition there will be the programs of government, initiated for the purpose of providing essential services as well as for furnishing employment for returning warriors—programs that are still not accurately defined but which must, of necessity, be larger and more continuous than any peace-time projects we have yet seen. The post-war market for the products of our industries will far exceed anything that may now be offered as a reasonably conservative estimate.

at Basic Magnesium

59 units of Dorr Equipment are in use at the world's largest magnesium metal plant at Las Vegas and the raw material concentrator at Luning for:

Acid Neutralization
Brine Purification
Water Treatment
Sewage Treatment
and
Concentration

THE DORR COMPANY · ENGINEERS
570 LEXINGTON AVENUE · NEW YORK
ATLANTA · CHICAGO · DENVER · LOS ANGELES

DORRCO

The varied use of Dorr Equipment at Basic Magnesium is the direct result of our years of experience in the fields of Chemical, Industrial, Metallurgical and Sanitary Engineering — an experience that can probably increase your production today, and save you money tomorrow.

DUST RECOVERY SYSTEMS

Recognized throughout industry for their outstanding qualities and performance

Buell Systems are widely used by leading concerns throughout the rock products industry in conjunction with

KILNS
DRYERS
RAW & FINISHING MILLS
CLINKER COOLERS
and
ASPHALT PLANTS

Buell (van Tongeren) Dust Recovery Systems offer distinct advantages in efficient operation, long life, and low installation and maintenance cost.

WRITE FOR BULLETIN G-842

BUELL ENGINEERING COMPANY, Inc.

SUITE 5000, 12 CEDAR STREET, NEW YORK 5, N. Y.

BUY WAR BONDS AND MAKE THE AXIS BITE THE DUST

PIT AND QUARRY

CHICAGO AUGUST, 1943

10 Lime Plants Had No 1942 Accidents, Figures Indicate

The eighth yearly accident-prevention contest among lime producers conducted by the Bureau of Mines in coöperation with the National Lime Association was represented by a larger number of enrollments than in any previous contest. The 58 plants enrolled in 1942, ten more than in 1941, were in operation more than 9,000,000 man-hours. Eight plants enrolled for the first time.

The Bakerton plant of The Standard Lime & Stone Company had the best safety record in 1942, in that it worked the largest number of man-hours without a lost-time or disabling injury to any of the employees. This plant, located at Bakerton, West Virginia, was in operation 220,286 man-hours without a disabling injury. The Bakerton plant also had the best record in 1941, when it operated 213,065 man-hours with an accident-free record.

Nine other plants succeeded in operating throughout the year without disabling injuries and were awarded certificates of honor by the National Lime Association. They were:

North American lime plant near Martinsburg, West Virginia, operated by the North American Cement Corporation, 1,941,071 man-hours.

Asbury plant, Knoxville, Tennessee, operated by the Standard Lime & Stone Company, 122,805 man-hours.

South Chicago plant, Chicago, Illinois, operated by the Marblehead Lime Company, 100,285 man-hours.

Superior plant, Pelham, Alabama, operated by the Superior Lime & Hydrate Company, 47,720 man-hours.

Marblehead plant, Marblehead, Illinois, operated by the Marblehead Lime Company, 44,535 man-hours.

Waianae plant, Honolulu, T. H., operated by the Hawaiian Gas Products, Ltd., 44,236 man-hours.

Newala plant, Newala, Alabama, operated by the Newala Lime Works, 36,149 man-hours.

LeRoy plant, LeRoy, Minnesota, operated by Fowler & Pay, worked 23,589 man-hours.

New Haven plant, New Haven, Vermont, operated by the Green Mountain Lime Corporation, 15,005 man-hours.

Donates Gravel Barge for Use as Fire Boat

A 250-ton capacity sand-and-gravel barge, donated by McCrady-Rodgers Company, has been converted by the City of Pittsburgh into a fireboat capable, with the help of mobile units, of pumping 10,000 gallons of water per minute on fires within a mile of the water front.

In the event enemy bombing should damage the city's reservoirs, fires now can be put out by pumping river water.

Coming Events

August 19, 1943—Cincinnati. Semi-annual meeting, board of directors, National Sand and Gravel Association, Netherland Plaza Hotel.

August 20, 1943—Cincinnati. Semi-annual meeting, board of directors, National Ready Mixed Concrete Association, Netherland Plaza Hotel.

October 5-7, 1943—Chicago. Thirty-second National Safety Congress and Exposition, National Safety Council. Hotel Sherman.

Bids Too Low But Agrees to Furnish Lime Requirements

The Ada Lime Company, which sought to withdraw its bid of $9.74 a ton to furnish the Oklahoma City water department with lime for the next fiscal year, after a conference with city officials, withdrew the request and declared it would fulfill the contract.

The company, which has furnished Oklahoma City with lime for the last two and one-half years, offered its bid last June 5. Five days later the bid was accepted by the city. Later the company asked permission to withdraw the bid and recover the 10-per cent. deposit of $1,460, which was offered at the time the bid was placed. A representative of the firm said the company could sell the lime at $5 a ton more to other buyers.

International Minerals Builds Fluorspar Mill

The International Minerals & Chemical Corporation of Chicago has begun the construction of a new fluorspar mill at Gila, New Mexico, for the Metals Reserve Company. The plan contemplates, when completed, a plant capable of handling 100 tons every eight hours.

The output of several fluorspar mines in the vicinity of Gila has been contracted for, and it is anticipated that a number of mines will soon be furnishing custom ore for this plant. An access road has just been completed to serve the new operation.

The Lehigh Portland Cement Company's plant in Buffalo has converted 50 per cent. of its cement-production facilities to the manufacture of chemical lime. Cement production at the plant was halted for a month to make the change.

Sam Russell, Dean of Blasting Experts, Passes Away at 63

Sam Russell

Samuel R. Russell, 63, of the Explosives Department, E. I. du Pont de Nemours & Company, dean of America's dynamite technicians and well-known in the quarry industry died suddenly July 8, at Easton, Pennsylvania. He resided at Wilmington, Delaware. Mr. Russell, who is said to have shot more dynamite than any man in the country, had gone to Easton to supervise a blast.

The foremost authority on all kinds of quarry and marine blasting, he perfected the method of tunnel blasting in open quarries. He supervised shots not only in this country, but in Canada and South America. He often was called in as a consultant to the government on various projects, the deepening of Honolulu harbor being one of many, and one of particular interest.

Mr. Russell was the country's outstanding technician on precision dynamiting. One of his most spectacular accomplishments was the felling of a river dam which had been built upright on one bank. By accurate blasting of a retaining wall, he dropped the pre-constructed dam in a prepared base with only inches to spare on either side of the dam.

Whenever there was a big, dangerous blast to be made, "Sam" Russell was called on. He felled many an obsolete factory chimney within a narrow space between two buildings. He dynamited old bridges and made the debris fall exactly in a previously selected spot. During his lifetime he blasted loose literally billions of tons of rock. Recently he was called in as a consultant on another type of shot in Canada, which will involve the use of 2,300,000 pounds of high explosives in one charge. Once he even blasted a foundation in the middle of a power plant without the plant's dynamos shutting down for a minute.

Mr. Russell was born in Belfast, Ireland. He came to this country at an early age, and was educated at Rensselaer Polytechnic Institute. He worked as a construction engineer for several companies before he joined du Pont in 1907 as a salesman. He soon was transferred to the technical division, and became one of the country's first specialists in dynamiting techniques. He was senior technician at the time of his death.

Paid Circulation of Pit & Quarry Among Nonmetallic - Mineral Producers in Recent Years:

CONTINUOUSLY FOR 26 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

1942	(November)	6,650
	(May)	6,513
1941	(November	6,179
	(May)	5,945
1940	(November)	5,397
	(May)	5,037
1939	(November)	4,641
	(May)	4,617
1938	(November)	4,496
	(May)	4,366
1937	(November)	3,971
	(May)	3,772
1936	(November)	3,654

82% increase in 6 Years

Silicosis Compensable Under New Arizona Law

Silicosis and 35 other occupational diseases, principally pertinent to mining, are now compensable under provisions of the Arizona law enacted by the state legislature and signed by Governor Sidney P. Osborn. Carrying an emergency clause, the law became immediately effective.

All employers of three or more regularly employed workers must insure their employees and total benefits can not exceed $5,000.

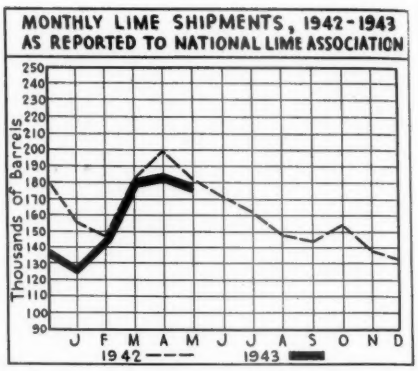
Mixer Shaft Rebuilt with Minimum Delay

As part of its broad service to industry in St. Louis, the John Nooter Boiler Works Company undertakes many unusual repair jobs. One of those undertaken recently concerned the badly damaged agitator shaft of a concrete truck-mixer weighing 300 pounds, and made of nickel-chromium steel. This shaft was deeply scored and worn at the packing area from the constant infiltration of concrete.

Under ordinary circumstances a new shaft would have been installed, but this required removal of the entire mixing chamber and its driving mechanism. Bearings would have had to be removed and a 40-inch diameter gear pressed off the old shaft and pressed on to the new.

The entire mechanism would then have had to be reassembled.

Through the ingenuity of the Nooter Company's engineers, the scored shaft was grit blasted and "metalized" in position. Afterward the sprayed area was finish-ground without disassembling. This is another instance where "metalizing" has eliminated replacements and saved days of labor and equipment tie-ups. The process involves the building up of worn areas by spraying molten metal on the surface and refinishing afterward. Information regarding the process may be obtained from the Metallizing Engineering Company, Inc., Long Island City.



According to data collected by the National Lime Association, 64 companies in May, 1943, shipped 179,369 tons of lime (115,390 quicklime; 63,979 hydrate). Reporting companies represent 44.0 per cent. of the association's total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 450,000 tons. Shipments of lime by users for May, 1943, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	3,365	20,924
Building	9,565	19,410
Chemical	102,460	23,645
Total	115,390	63,979

SHARE YOUR PIT AND QUARRY

● When you have finished with your copy of Pit and Quarry please pass it to someone else in your organization. By doing so you will not only be helping him by making the information it contains available to him, too, but you will also be helping your government which, because of the shortage of manpower, has been forced to place limitations on the use of paper by magazine publishers. We shall, of course, continue to send Pit and Quarry regularly to you and to all other subscribers. But we suggest this simple method of making Pit and Quarry available to a larger number of men at a time when the information it provides is most urgently needed and without increasing our consumption of paper.

New Cement Plant at Northampton Began Operations July 9

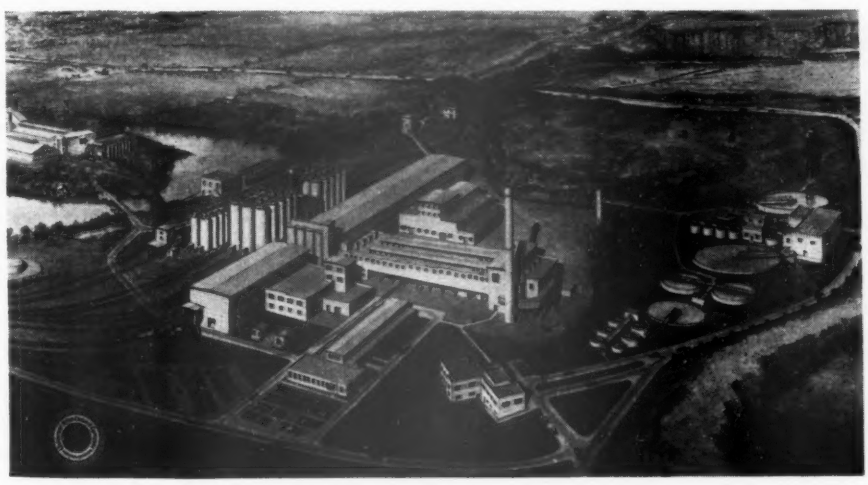
The beginning of operation in its new cement plant at Northampton, Pennsylvania, was announced July 9 by Blaine S. Smith, president, Universal Atlas Cement Company.

The new plant is said to be the finest and most modern in the world. It is capable of making all types of cement including white cement. It generates its own power by utilizing waste heat from the kilns to operate steam turbo-generators. The plant utilizes the flotation system which proportions raw materials by subtraction rather than by addition. To accomplish this it was necessary, in building the new plant, to use the wet process in contrast to the dry process used in the old plant.

Northampton, from which 8,000,000 barrels of Atlas cement were shipped for the Panama Canal, is historic in cement annals. The new plant is the fifth to be built on the same properties, each in its time a model of the latest developments for cement manufacture. Northampton plants of Universal Atlas are identified with the origin of some of the most important steps in the making of Portland cement now used throughout the industry, including the first rotary kiln in America, the introduction of powdered coal, and the discovery of the retarding influence of gypsum in the setting time of cement. Here, also, the company made one of the first white cements and originated the American production of calcium-aluminate cement.

The new plant was designed by the engineering department of the company under the direction of Paul C. Van Zandt, consulting engineer, and S. J. Robison, chief engineer. M. W. Winsch is plant manager. The Turner Construction Company, New York, was the general contractor.

In addition to the new plant at Northampton, the Universal Atlas Cement Company also owns and operates plants at Hudson, New York; Universal, Pennsylvania; Buffington, Indiana; Duluth, Minnesota; Hannibal, Missouri; Independence, Kansas; Leeds, Alabama; and Waco, Texas.



New plant of Universal Atlas Cement Company at Northampton.

E. F. Brownstead Is Plant Superintendent

E. F. Brownstead

In the pictures of cement-plant superintendents published in the July, 1943, issue of PIT AND QUARRY, a likeness of the late F. C. Brownstead appeared as superintendent of the Ironton, Ohio, plant of the Alpha Portland Cement Company. E. F. Brownstead is the present superintendent of this plant, having taken over the position following the death of his father which occurred on February 27, 1942.

Inland Steel Acquires Hillside Fluorspar

The Inland Steel Company has taken over the operation of the Hillside Fluorspar Company's workings at Rosiclare, Illinois, following acquisition of the company's capital stock.

Expansion of mining and production facilities is to get under way soon, it is reported.

Grace Evans Heads Monon Stone; Balfe Interest Dissolved

Mrs. Grace M. Evans

Through court action, Mrs. Grace M. Evans, surviving member of the partnership of the Monon Crushed Stone Company, Monon, Indiana, has dissolved the business interest of the late George H. Balfe of Lafayette, Indiana.

Since the death of her husband, Herman H. Evans, on March 9, 1918, Mrs. Evans has continued to operate the business. She has now been released from the $500,000 bond set by the court.

The Monon flag-raising ceremony.

Plant and quarry employees, 45 in all, gathered recently at a flag-raising ceremony at the Monon plant. Participating in the program were Mrs. Evans, E. H. Boudreau, and Joseph J. McCormick. A song was dedicated to John A. McGuire, son of John C. ("Cappie") McGuire, superintendent.

The Stewart Sand & Material Company has acquired 40 additional acres of deposits adjoining the quarry of its subsidiary, the Kansas City Crushed Stone Company near Independence, Missouri.

Federal Trade Commission Orders End of Basing-Point Pricing

THE Cement Institute and 75 member corporations who produce and distribute more than three-fourths of the Portland cement manufactured in this country, and their officials and agents, have been ordered by the Federal Trade Commission to cease and desist from engaging in or continuing any combination or conspiracy to sell cement at prices arrived at by the use of their multiple basing-point delivered-price system. The commission finds that the respondents' practices constitute unfair methods of competition in violation of the Federal Trade Commission Act and their delivered-price system results in discrimination in price among their respective customers in violation of the Robinson-Patman Act.

On the basis of its findings the commission concludes that, from the evidence of record, the capacity, tendency and effect of the combination maintained by the respondents has been to hinder, lessen, restrain and suppress competition in the sale and distribution of cement between the several states; to deprive purchasers of cement, both private and governmental, of the benefits of competition in price; to systematically maintain artificial and monopolistic prices in the sale and distribution of cement; to prevent purchasers from utilizing motor trucks or water carriers for the transport of cement and from obtaining benefits which might accrue from the use of such transportation agencies; to require that purchases of cement be made on a delivered-price basis, and to prevent and defeat efforts of purchasers to avoid this requirement; frequently to deprive agencies of the federal government of the benefits of all or a part of the lower land-grant rates available to such purchasers; to require certain agencies of the federal government to purchase their requirements of cement through dealers at higher prices than are available in direct purchases from manufacturers; to establish and maintain an agreed classification of customers who may purchase cement from manufacturers thereof; to maintain uniform terms and conditions of sale; to hinder and obstruct the sale of imported cement through restraints upon those who deal in such cement; and otherwise to promote and maintain their multiple basing-point delivered-price system and obstruct and defeat any form of competition which threatens the continued use and maintenance of the system and the uniformity of prices created and maintained by its use.

The findings of the commission are, in part, substantially as follows:

There are approximately 80 manufacturers of cement in this country and the total number of mills operated by them is about 150. Cement is a heavy and bulky commodity and the cost of transporting it from the point of manufacture to the point of use generally constitutes a substantial part of the delivered cost. The high transportation cost constitutes one of the factors which have contributed to the extension of the manufacture of cement throughout the country.

The concentration of a large proportion of the industry in the control of relatively few individuals has aided in creating and maintaining unity of purpose among the respondents. At the time this proceeding was commenced, practically all producers of cement were members of the institute, and the industry thus had an effective vehicle for the formulation, expression and execution of collective plans and purposes. The records of coöperative activity among cement producers show that the cement industry has evidenced a strong aversion to free competition, and that its members have, by understandings and agreements, developed and maintained substantial uniformity of action among themselves with respect to practically every marketing procedure which involves price or other competition. Some of the current practices of the industry originated in agreements entered into 20 to 30 years ago and have persisted, with the support of collective action, in substantially their original form. Other practices, having similar origin, have been modified or extended by collective action into their present form.

Long-pursued restraints of competition have contributed to, if not created, the belief now generally held by the cement-company respondents that free and open competition is impracticable for the cement industry and have fostered among the respondents a philosophy of seeking not to exceed others in quality or price or in affording terms of sale that would be more attractive to purchasers.

Substantially all the sales of cement made by the cement-company respondents are made on the basis of a delivered price; that is, at a price determined by the location at which actual delivery of the cement is made to the purchaser. In determining the delivered price which will be charged for cement at any given location the respondents use a multiple-basing-point system. The formula used to make this system operative is that the delivered price at any location shall be the lowest combination of the base price plus the all-railway freight. Thus, if Mill A has a base price of $1.50 per barrel, its delivered price at each location where it sells cement will be $1.50 per barrel plus the all-railway freight from its mill to the point of delivery, except that when a sale is made for delivery at a location where the combination of the base price plus the all-railway freight from another mill is a lower figure, Mill A uses this lower combination so that its delivered price at such location will be the same as the delivered price of the other mill. At all locations where the base price of Mill A plus the freight is the lowest combination, Mill A recovers $1.50 net at the mill; and at locations where the combination of the base price plus the freight of another mill is lower, Mill A shrinks its mill net sufficiently to equal that price. Under these conditions it is obvious that the highest mill net price which can be recovered by Mill A is $1.50 per barrel, and on sales where it has been necessary to shrink its mill net price in order to match the delivered price of another mill its net recovery at the mill is less than $1.50.

Approximately half of the mills have base prices and are known as base mills. Other mills having no base prices are known as non-base mills. The number and identity of those mills change from time to time. Having no base price, a non-base mill quotes and sells cement at delivered prices determined by the lowest combination of the base price plus the freight from the base mill. The mill net price of a non-base mill is therefore highest in its home location and is less at all other locations by the amount of the freight from its mill to the point of delivery to the purchaser. The respondents also have maintained certain arbitrary variations with respect to basing points. A base may be a dual one, that is, have two prices in effect simultaneously, each applicable in different territory.

Excluding errors made in the operation of the basing-point pricing formula, it is plain that it will inevitably result in identical delivered prices for cement at any given location by all the sellers using it. The formula is also self-perpetuating in the sense that the companies do not need to renew their understandings or agreements, upon which the formula is founded, to maintain identical delivered prices over an indefinite period of time.

In order for the pricing formula to produce identical prices at any given delivery point, it is necessary that the freight factor used in the delivered price of each seller be the same. The ascertainment of freight rates involves the use of complicated freight tariffs, or knowledge of routing, switching charges, car weights, and other factors. Independent determination of freight rates may result in different individuals reaching varying results. Members of the industry began many years ago to disseminate freight-rate information among themselves in order to avoid quoting different delivered prices as a result of having used different freight-rate factors in determining those prices. The coöperative preparation and publication of special freight-rate books for use by cement producers was commenced about 1914 by various regional associations. The Cement Institute has maintained and operated two freight-rate bureaus, one in Bethlehem, Pennsylvania and one in Chicago, and has published rate books for substantially every state east of the Rocky Mountains. The rate books are intended to provide common freight-rate factors for pricing purposes.

The respondents extended their coöperative rate-dissemination activities to land-grant rates for the same purpose as

existed with respect to commercial rates. Land-grant rates are special rates received by the government from certain railroads. In order to secure the benefit of such rates on a shipment over these railroads, the shipment must be one of government property under government bill of lading. The land-grant rate problem was not of great importance to the respondents until, under the stimulus of the expansion of public works in the early 1930's, government purchases of cement assumed important proportions.

It became a widely prevalent practice in the case of bids to the United States government for cement companies to quote what was called a "government-destination cost." In bidding a "government-destination cost" it was the practice of the individual company to quote a figure which was based upon the mill net return applicable under the basing-point system to the particular destination involved, to which was added an estimated land-grant or special rate to the destination. In the absence of exact information regarding the applicable land-grant rate, the institute furnished its members with its best approximation of that rate. The result was that an identical "government-destination cost" was filed by different bidders, all of them making the condition that the government determine the bidder's mill price (for the purpose of invoicing) by subtracting the actual land-grant rate. This condition was imposed to prevent the government from deducting commercial freight and from thereby avoiding the effect of identical bidding.

The respondent's pricing formula, when supplemented by common freight factors, inevitably produces identical prices at any given delivery point by all the sellers who use it. Identical prices are important to the cement companies because, under conditions which have existed, a difference in price as small as 1 cent a barrel may divert business from one seller to another. The perfection of the pricing formula in producing indentical delivered prices is best illustrated by sealed bids made to public agencies. Instances of bids, some of which involve the use of commercial rates and some of land-grant rates, reveal, for example, that on bids on 8,000 barrels of cement for the Navy Department at Brooklyn, opened May 29, 1936, 17 respondent corporations each bid $2.43 per barrel; an abstract of the bids on 1,200 barrels of cement to the U. S. Engineer Office at Vicksburg shows that 15 respondents each bid $2,772 and $3,060 as the destination cost and f.o.b. local switch delivery, respectively. An abtract of the bids for 1,000 barrels of cement for the U. S. Penitentiary at Leavenworth, opened September 3, 1935, shows that seven of the bidders gave $2.163424 as the price per barrel in their bids; the eighth bid was $2.17528. An abstract of the bids for 6,000 barrels of cement to the U. S. Engineer Office at Tucumcari, New Mexico, opened April 23, 1936, had 11 bidders quoting $3.286854 as their price per barrel.

Successful maintenance of the system requires that the price leaders, usually the larger chain mills, possess the power to force recalcitrants to adhere to the system and that this power be exercised when necessary. The multiple-basing-point delivered-price system has inherent within itself the means for enforcing its observance. One producer can, by putting a base price in effect at the mill of another producer, absolutely fix the maximum mill net price of that producer, usually without affecting the mill net price on more than a portion of its own business. Some of the leaders have not hestitated to use this instrument to force adherence to the pricing system.

From time to time various developments have occurred which threatened to disrupt the operation of the respondents' method of obtaining uniform prices by means of the mutiple-basing-point system and common freight-rate factors. One such development has been the desire of some dealers, contractors, and other persons to utilize motor trucks for the transportation of cement from the respondents' mills or warehouses to destinations within a reasonable distance, particularly where such transportation may be more economical than shipment by railway, or direct delivery to a job by truck is more convenient as well as cheaper. It is obvious that if a purchaser is allowed to take delivery at the mill in trucks owned or controlled by him, the seller loses control of the destination price. Around 1929 the respondents, through coöperation and agreements, began taking active steps to eliminate, discourage and control the trucking of cement. One of the earliest restrictive steps taken was the addition of a 15 cents per barrel charge to the mill base price for delivery to trucks at the mill.

The respondents' multiple-basing-point delivered-price system is directed towards the maintenance of identical prices for cement at any given location. Under this system, until very recently, purchasers of cement generally paid the freight charges directly to the railroad. This often afforded an opportunity for purchasers to secure cement at a delivered cost lower than the delivered-price quotation in effect at the point where the cement was to be used. This was done by making the purchase at the delivered price at some destination where such price included, under the pricing formula, a freight factor higher than the actual freight charges to the purchaser's true destination, and then causing the railroad to divert the shipment to the true destination. Such diversion in transit did not change the amount received by the seller from the amount he would have received had the diversion not been made (though not the same amount as he would have received had the purchase been made on the basis of the delivered price in effect at the buyer's true destination), but the purchaser, after paying the actual freight to the railroad, received the cement at a delivered cost lower than he could have secured by purchasing at the delivered price in effect at his true destination. This interfered with the respondents' desire to maintain uniform delivered prices at each destination and they undertook by means of understandings and agreements to prevent purchasers from making diversions in transit.

Prices which appear to be uniform may be affected by differences in the accompanying terms and conditions of sale. A standardization of the terms and conditions of sale is needed to effect complete and total price uniformity. The resopndents' multiple-basing-point delivered-price system has been supplemented by uniformity of terms and conditions of sale brought about by collective action. This process did not begin with the Cement Institute, although it carried forward, supported and supplemented the uniformity previously created.

The concerted action of the respondents in establishing a specific division of business between themselves and dealers included a division of sales to agencies of the federal government. Prior to 1935 it was the established practice for producers of cement to make direct sales to federal agencies. New dealer policies put into effect in that year provided that sales of cement to the federal government for emergency or unemployment agencies, such as the Public Works Administration, Civilian Conservation Corps and Federal Relief Administration, should be made by dealers. This change resulted in the government being unable to make purchases of cement for such uses directly from the respondents and in its being obliged to purchase its cement requirements in those categories from dealers. The prices paid dealers necessarily included the dealer mark-up and were higher by that amount than would have been the case in direct purchases from producers. Purchases from dealers also prevented the government from taking advantage of land-grant rates in order to reduce its delivered cost of cement. A further result was to limit the sources from which purchases might be made.

From time to time the corporate respondents who sell cement in some of the larger seaport cities have encountered competition at such ports, and in territory adjacent thereto, from cement of foreign manufacture imported for sale in this country. The most commonly used method of meeting such competition has been the establishment by the respondents of arbitrary prices or price zones in the territory affected by the lower prices quoted on foreign cement, at the same time maintaining higher prices elsewhere under the multiple-basing-point delivered-price system.

When price stability was restored in 1932, and a series of substantial advances in the price of cement were made in that year and in 1933 in the face of the continuing depression, the higher prices and uniformity of those prices, including identical sealed bids on public projects, brought renewed protests from both public and private sources. As a result of the protests and charges against the cement industry and its members, the Cement Institute and its members engaged in a concerted course of action directed toward allaying the criticism and seeking to convince the public that there was no collusion among cement manufacturers.

The Committee on Public Relations of the Cement Institute and various important figures in the institute's affairs began working assiduously upon problems arising from criticism of the industry, diversion of business to other materials,, and threats of competition from publicly-owned cement plants. In March, 1934. the chairman of this committee sent to various members a letter which began: "The cement business is in public disfavor," listed evidences of such disfavor, and concluded, "How shall we cure the situation? A committee of the Institute has been studying it and wants your counsel." In April, 1934, the committee submitted an elaborate program. It described its objective as being the correcting of misconceptions regarding practices of the industry held by public officials, newspapers, the public and other groups, and replacing the misconceptions with a favorable attitude on the part of the various groups. A series of advertisements were run in a number of publications, and other measures adopted which included an effort to persuade the Federal Trade Commission to undertake a study of the basing-point system "with

(*Continued on page* 61)

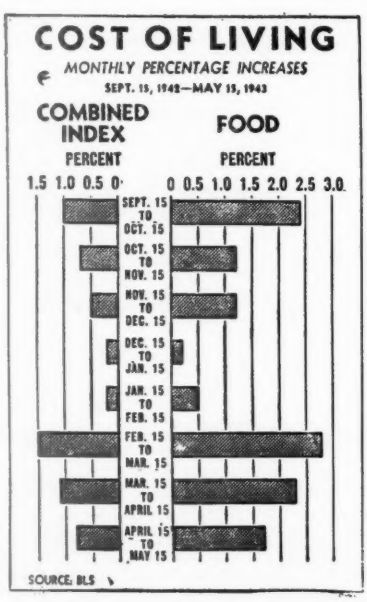
WASHINGTON NEWS LETTER

another P and Q exclusive

IN direct contrast with the confusion in domestic affairs, the news from the war fronts during the past month has been uniformly good, creating a pervasive feeling of confidence in the conduct of the war.

Aside from the Sicilian operation, a particularly satisfactory source of encouragement is the marked improvement in the overseas shipping situation, largely as a result of the success of the anti-submarine campaign which has cut sinkings down to record low levels. As a consequence of this factor, and the saving which results from the use of the Mediterranean as an Allied ocean-highway, backlogs of exports have been reduced, and import difficulties are being considerably eased. Stockpile restrictions on a number of commodities have been somewhat relaxed. These developments have exerted a beneficial effect on both the war and civilian segments of the entire national economy. In view of the magnitude of our present shipbuilding program—the United States alone will build over 19,000,000 deadweight tons of merchant shipping this year as against 8,000,000 tons last year—it is doubtful whether the toll taken by the U-boats will again exceed new construction.

The war - production program, however, was prepared with shipping limitations keenly in mind. If the easing of the situation continues more than temporary, therefore, a raising of production objectives for 1944 may be expected. This possibility reveals the concern of many Washington officials, as reflected in recently expressed warnings to the people concerning the danger of complacency and over-optimism at this stage of the war. This is not the first time that such words of caution have emanated from the capital city, but this time the reason is serious enough. War output has fallen off in the last two months, although schedules call for substantial monthly increases throughout the year.

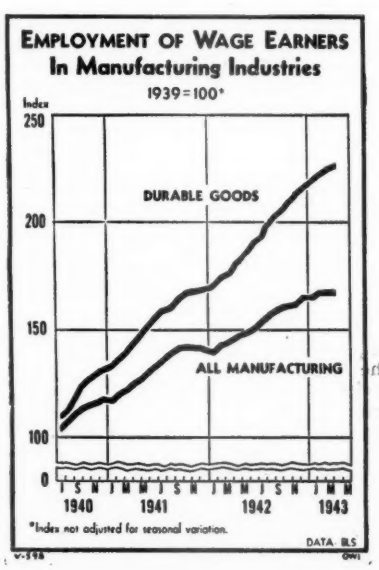


The state of public thinking may be the cause of the slackening in production, but even if this is so, the people themselves can hardly be blamed. The gyrations of the Congress in its closing weeks and its generally destructive attitude on the most pressing problems of the home front have been disappointing to all. Where inflation control was concerned, the past session of the Congres was anti-everything, except inflation itself. As a result, instead of "holding the line" of wages and prices at September 15, 1942 levels, it looks now as if there is no alternative but to effect an orderly withdrawal to a more defensible line.

There is no questioning the difficulty which the Administration faces in dealing effectively with a refractory Congress; it is a job which requires all the political experience and acumen which the President can bring to bear. The swift overriding of his veto of the Smith-Connally War Labor Disputes Act—the most severe Congressional setback ever dealt a Chief Executive in war time—shook Mr. Roosevelt out of his pre-occupation with the direction of combat operations in the war zones and only this made possible salvage of what little remains of the Administration's subsidy program for price rollbacks. It is certain that the President will use the current recess to catch up on domestic problems and to put his administrative house in order. Much unnecessary antagonism has been caused by poorly defined lines of responsibility and overlapping authority in the executive agencies. This has been emphasized by the frequent bickerings between various agency officials. One of the first steps taken by the President toward the elimination of such difficulties was the stripping of Jesse Jones and Vice-President Wallace of all responsibility for economic-warfare problems, as a punishment for the public airing of their jurisdictional dispute. The President has served notice on all other agency heads that he will not tolerate any further embarrassment of this kind, and no one doubts that he means what he says.

As a result of the failure to check the rise in the cost of living, the Little Steel formula is in for some dark days. Considerable pressure to circumvent the formula has already begun and there are numerous indications that the WLB will give way in cases where the effective prosecution of the war effort can be clearly demonstrated. Simultaneously, labor leaders are engaged in mobilizing more effectively their full political power. When Congress reconvenes it will be confronted with organized labor's voting strength marshalled behind a three-cornered program: (1) repeal of the obnoxious provisions of the anti-strike act; (2) subsidy legislation on a large scale, with particular emphasis on the prices of staple foods as a safeguard for low-income groups; (3) an improved government fiscal policy involving higher individual income taxes, but with a shift of a greater part of the tax burden from the low- to the middle-income brackets.

The Alexite Engineering Company of Colorado Springs, producers of vermiculite and manufactured products, has moved its New York City office to 500 Fifth Avenue.



the VICTORY *Program*

. . . . .AND YOUR BUSINESS

CONSTRUCTION MACHINERY DELIVERIES.—Restrictions on deliveries of certain items of construction machinery for civilian use were eased somewhat July 2 by the War Production Board. By making changes in Schedules A, B and C of Limitation Order L-192,[1] post-hole diggers, hand-carried concrete surfacing machines and "finishers and rodding machines for wet concrete" were made available for civilian as well as military use by amendment.[1]

A number of other minor changes were made in the description of items in the schedules for the purpose of clarification.

CONSTRUCTION-MACHINERY PARTS.—Limitation Order L-192 was originally isued on November 20, 1942. It was designed to integrate the production and distribution of construction machinery with the nation's over-all war production. The order has since been amended several times, the current issue bearing the date June 1, 1943.

Controls under L-192 are effected by (a) scheduling the production of all manufacturers and (b) by segregating the various items of equipment into several categories, and placing specific controls on each separate category as the degree of need and importance of the end-use of the items warrant. The controls enable the War Production Board to examine monthly the planned production and delivery schedules of all construction - machinery manufacturers and, on the basis of the information submitted, to approve, modify, or delay the schedules.

To maintain in good repair the nation's existing resources of used construction machinery has become, more than ever before, a serious responsibility. In writing the repair parts provisions of L-192, considerable thought was given to the maintenance problem. The Construction Machinery Division attempts to assist, as far as possible, all proper claimants upon the repair-parts supply. It believes that supply can be made adequate only if every claimant receives his legitimate requirements, and if proper provisions are made to prevent diversion or stock-piling.

In addition to insuring that no one obtain excess repair parts, the Division provides a means of getting prompt assistance for immediate repair of working equipment, a separate means for rebuilding and reconditioning idle equipment, and for the acquisition of a repair-parts inventory. It further provides that a producer may not deliver in any month more than 75 per cent. of his combined production and inventory of any repair part to War Agencies, if doing so prevents delivery of that specific repair part in that month to any other person. In this way the Division sees to it that each month there is being reserved for non-war agencies or civilian users an amount up to 25 per cent. of the combined production and inventory of every repair part produced. The provision, however, only operates when war agency orders exceed 75 per cent. of the producer's output. If the delivery of a quantity greater than 75 per cent. in any month to War Agencies would not prevent a producer filling all orders from civilian users a producer may continue to deliver until by doing so he interferes with civilian orders. It should be kept in mind, however, that under the terms of L-192 dealers' or distributors' repair-parts orders to replace inventory or to fill orders not yet sold by a dealer or distributor are not considered in arriving at the 75 per cent.—25 per cent. division.

Any user of equipment listed in L-192 (see *P&Q*, May, 1943, pages 53-56) need only execute a short certification to obtain the repair parts he requires for actual or impending breakdown or sound maintenance of equipment. The L-192 certification is a representation by him that the parts ordered are required to put the item of equipment into sound operating condition; that he does not have similar parts on hand or on order for that purpose; and that he has complied with the terms of Limitation Order L-196 requiring registration with the War Production Board of certain items of construction equipment owned by him. Within the certification form he identifies the equipment for which the repair parts are sought, notes the preference rating assigned to his order, and the type of project on which the equipment is working. Contractors or other persons having frequent use for the L-192 certification form may have a rubber stamp of it prepared and when using it, merely add their signature.

It is noted that all persons, including War Agencies, are required to execute the L-192 certification when ordering repair parts for actual or impending beakdown. As War Agencies are not required to register their equipment under Limitation Order L-196, they may note on their L-192 certification a statement that L-196 is not applicable. Likewise as all items of equipment listed in L-192 are not required to be registered under L-196, any person ordering a repair part for an item of equipment that is not required to be registered under L-196 may note on their L-192 certification that L-196 is not applicable.

Certain preference rating orders in the "P" or "U" series and CMP Regulations 5 and 5A require that whenever the preference ratings assigned by such orders are applied, a special certification to be executed. Therefore, if when executing the L-192 certification, a person is applying to a repair-parts order a preference rating assigned by any preference-rating order that also requires a certification, such person must execute both the L-192 certification and the certification that the applicable preference rating order requires. If a person is working on an essential project, as defined in paragraph (c)(7) of L-192, he may use the rating of such project and indicate it on the L-192 repair parts certification.

If a person is not working on an "essential project" or can not properly apply a preference rating assigned by any preference rating order, including CMP Regulations 5 and 5A. Such person must apply for a preference rating on a PD-1A Form for the repair parts required. If such person requires repair parts for equipment that is inoperable and needs emergency assistance a preference rating may be obtained by telephoning the nearest District Office of the War Production Board. Any preference rating so obtained may properly be noted on the L-192 certification.

It is permissible to telegraph an L-192 certification to a supplier instead of mailing it (see *P&Q*, July, 1943, page 40). Telegraph certification, should set forth substantially the same information as that required by the certification form outlined in Paragraph (j)(l)(i) of L-192. If, when using a telegraphic L-192 certification, the sender is also applying a preference rating assigned by CMP Regulation 5, CMP Regulation 5A, or any preference rating order in the "P" or "U" series that requires a certification whenever such rating is applied, the sender need only note on the telegram the preference rating applied, the source of that rating and the statement "Ratings Certified." For example: "AA2-MRO, CMP Regulation 5, Ratings Certified." The sender must also make a similar notation on a copy of such telegram which shall be signed by him and retained by him in his records. By following the telegram procedure, it will not be necessary to supply any further certifications on that particular repair parts order.

In reordering repair parts from a producer, it is not necessary for a dealer or distributor to execute an L-192 certification. He may obtain repair parts by extending with his order the ratings borne by his customers' orders using a Priorities Regulation 3 certificate for that purpose.

In order to obtain parts for rebuilding or reconditioning construction machinery it is necessary for all persons, other than war agencies, persons who have contracted to rebuilt war agency-owned equipment and serialized mine producers operating under Preference Rating Order P-56, to obtain specific authorization to purchase repair parts on Form PD-556. This form, listing in detail the repair parts required and their approximate value, should be submitted to the Construction Machinery Division in Washington. The Division will examine the applications and authorize them to the extent that the quantities requested are justified and reasonable. Repair parts orders for rebuilding or reconditioning received by a producer, dealer or distributor which are excepted from this provision may be filled upon the extension of a preference rating only. In the case of a war agency or one who has a contract to rebuilt or recondition war agency equipment, an extension of a PD-3A Form will be sufficient and in the case of a mine producer a P-56 certification form may be accepted.

All persons (except producers, dealers, distributors, and war agencies) who may find it necessary to acquire a stock or inventory of repair parts must obtain an authorization on Form PD-556. The form should be filed directly with the Construction Machinery Division and should be fully supported by adequate reasons for maintaining the stock of repair parts. War Agencies may order the parts required for stock or inventory by applying preference rating certificates, such as Form PD-3A.

Dealers and distributors will follow the same procedure in replacing repair parts delivered by them on rebuilding or inventory orders, namely; extending the ratings borne by the delivered parts orders to their supplier on a Priorities Regulation No. 3 certification.

If a dealer or distributor is ordering repair parts from a producer to fill an order that he has sold but cannot fill from his own inventory, in addition to extending the preference rating borne by the repair parts order, he should state to the producer the fact that he is unable to fill the order from his inventory and also advise the producer of the identification of the project for which the repair parts are sought. By advice that the repair parts are not to be replace parts in inventory, the producer can consider such order in the 75 per cent.—25 per cent. division referred to above and by notation of the project identification the producer will be able to determine whether such order should be placed in the War Agency or Non-War Agency category.

HEAT EXCHANGERS.—Additional types of heat exchangers were brought under strict control by the War Production Board July 9 in an action designed to channel critical types and sizes into essential war industry and military use.

A revised Order L-172 broadens the coverage to include additional types and sizes but makes a distinction between the most critical types and others by requiring specific authorization by WPB before an order can be placed with a manufacturer for certain heat exchangers.

Applications for such authorization (to purchase Group I exchangers) must be made on Form WPB-1475 (formerly PD-615). In the case of all other heat exchangers (Group II) specific authorization is not required prior to the placement of orders, but the orders must bear a preference rating of AA-5 or higher.

The new action also:

1. Removes from the terms of L-172 heat exchangers being produced by a manufacturer as an integral part of other machinery, the construction of which has been approved by WPB through priority action or through other WPB orders. This avoids unnesessary duplication in filing applications and forms.

2. Provides a simple procedure for rejection of orders which cannot be accepted by the manufacturer because of the delivery dates required.

INDUSTRIAL TRUCKS.—Purchase orders for used industrial power trucks must be authorized by the War Production Board before they can be accepted in accordance with Amendment No. 1 to Limitation Order L-112 issued July 10.

Authorizations of acceptance are made on Form WPB-1319 (formerly PD-556).

Supplementary to L-112 the War Pro-

[1][Limitation order L-192, as amended April 9, 1943, was published in PIT AND QUARRY, May, 1943, pages 54 to 56.—ED.]

duction Board also issued an amended version of L-112-a, naming additional manufacturers of industrial power trucks on the list of those who make models which are approved by the WPB and come within the provisions of L-112.

The amended Supplementary Limitation Order also places limitations on the specifications applied to fork-type models of industrial power trucks. The new specifications limit the height of the lift and the length of the forks on the trucks.

MICA IMPORT RESTRICTIONS REVOKED.—Because importations of mica and sesame seed are now controlled by the terms of the War Production Board's general imports order (M-63), two supplemental orders (M-63-c and M-63-e), which formerly restricted imports of these commodities, were revoked by WPB on June 30 by Supplemental General Imports Order M-63-c, Revocation.

MINING MACHINERY.—Manufacturers of mining machinery are not meeting their schedules of production because of difficulties in getting component parts, it was revealed at a meeting of the Mining Equipment Industry Advisory Committee of the War Production Board late in June. Production schedules have been frozen 90 days ahead and no changes in the order of production approved by WPB will be permitted in any month.

Some members of the industry also cited labor shortages as well as the components difficulties as interfering with the processing of repair jobs.

Discussion revealed that no appreciable difficulties are being experienced in obtaining controlled materials. But the fear was expressed by committee members that unless something can be done to make available the essential equipment, production and repair will fall off in the last half of this year.

MINING PRIORITY PROCEDURE.—Mining Equipment Division of the WPB has completed the processing of the third-quarter applications on Form PD-400-C and notification to holders of mine serial numbers of quotas available for the third quarter has almost been completed. Accompanying the notification of quota assignments was the following letter:

WAR PRODUCTION BOARD
Washington, D. C. MD-1
May 20, 1943

Letter to accompany third quarter PD-400 Certificate

In Reply Refer To:
Mining Division
Reference P-56
CMPL-267

TO HOLDERS OF SERIAL NUMBERS UNDER ORDER P-56:

1. *PD-400 Certificate.* — The accompanying PD-400 certificate[1] provides an allotment of controlled materials (steel, copper, and aluminum) for delivery in the third quarter of 1943 and also dollar-value quotas for the purchase of fabricated repair parts and operating supplies and quotas of other materials which are not controlled materials. The PD-400 certificate assigns an allotment number and a preference rating of AA-1. In placing purchase orders for the materials authorized on this certificate, you should endorse on the order a certification in the form prescribed in CMP Reg. No. 7 (as shown in our previous letter CMPL-132 dated March 18, 1943)[2] together with the assigned rating, the allotment number, and your serial number under Order P-56. Up to June 30, 1943, the use of the allotment number in conjunction with ratings on orders for repair parts and operating supplies under the dollar-value quotas will give those orders a higher rating than corresponding orders without an allotment number. In accordance with CMP Reg. No. 3, an allotment number placed on a rated order after June 30, 1943 will no longer have an up-rating effect, but the allotment number assigned on the PD-400 must nevertheless be placed on the orders for purposes of identification.

2. *Use of Allotment Numbers.*—The allotment number should be certified in the abbreviated form provided by CMP Reg. No. 1. That is, only the number S-5 is to be included in the certification. To this should be added the quarter for which the allotment is valid. For this purpose the third quarter of 1943 is abbreviated to 3Q43, and the full allotment number to be certified for that quarter is S-5-3Q43. This means of identifying the quarter replaces the numerical system which was explained in our previous letter CMPL-132. The numerical designation of months has also been abandoned, and the months within each quarter are to be indicated merely by name. There is no need to change the quarter or month numbers on orders already placed or allotments already made.

3. *Advance Allotments for Controlled Materials.*—All previous advance allotments made to you for the third quarter and for subsequent quarters are hereby cancelled and are superseded by the allotments shown on the attached PD-400 certificate. To the extent that authorized controlled-materials orders placed by you, or allotments made by you on the basis of such advance allotments, exceed your new allotments you are required to cancel or reduce such orders or allotments. In addition to the allotments of controlled materials which are authorized on the certificate for purchase and delivery in the third quarter, orders may be placed for delivery of controlled materials in the fourth quarter up to 80 per cent. of the third-quarter allotments, for delivery in the first quarter of 1944 up to 60 per cent. in the second quarter of 1944 up to 40 per cent. of the third quarter allotments. Deliveries to be scheduled for advance quarters must be indicated by the proper abbreviation for the quarter, as 4Q43, and by the name of the month in which delivery is required. Deductions from the advance allotments should be made at the time your order is accepted and should be charged against the quarter indicated in the allotment number.

4. *Advance Quotas for Repair Parts, Operating Supplies, and other Materials.*—For all materials other than controlled materials the same provision is made for the placing of advance orders as in the case of controlled materials. The quota authorized on this certificate is to cover orders placed for anticipated delivery in the third quarter. All orders placed previously for third-quarter delivery on the basis of the advance allotment of 80 per cent. must now be deducted from the third-quarter quota assigned on the PD-400, and any orders which cannot be covered by this quota must be cancelled. You may also place advance orders for delivery in the fourth quarter up to 80 per cent. of the authorized third-quarter quota and for delivery in the first quarter of 1944 up to 60 per cent. and in the second quarter of 1944 up to 40 per cent. of the authorized quota. These quotas will be on an order-placing basis to the extent that the records should be kept and deductions made from the advance quotas at the time when the orders are placed. The charge should be made against the advance quotas on the basis of the anticipated deliveries. It is recognized that these deliveries will not be met in all cases, but once the orders are charged against a given quota, it will not be necessary to make any further adjustment, even though the actual delivery is earlier or later than the anticipated quarter.

5. *Return of Unused Allotments.*—If for any reason it becomes apparent that the allotment of controlled materials assigned on the PD-400 certificate will not be required in the current quarter, you must report the extent of such unused allotments to the Mining Division at the earliest possible date. Unused allotments reported to this Division may be reallotted to other companies to take care of emergencies.

6. *Grinding Balls.*—It is to be noted that grinding balls have been definitely classified as B Products and that only a preference rating, without any allotment of materials, is required to obtain them up to the limit indicated in Column 9, Item 55. This Division is allotting the materials that go into the production of grinding balls directly to the manufacturers.

7. *Re-rolled Rail.*—We urge you to use re-rolled rail wherever possible in place of new rail, and we would like you to notify us promptly of the extent to which you will be able to employ re-rolled rail within the allotment of carbon steel assigned to you.

8. *Lumber.*—The quota authorized for lumber in Column 9, in terms of board feet, sets the upper limit for your purchases of lumber. This lumber is to be obtained as far as possible under the provisions of Order M-208, as amended, which authorizes an AA-3 rating. If ratings higher than AA-3 are necessary to obtain delivery, an AA-1 rating can be applied under P-56 and the cost deducted from your dollar value quota.

9. *Limitation on Use of Ratings.*—Your dollar-value quotas and the ratings provided by them must not be used for maintenance, repair, or operating supply items that do not require the application of a rating (Example: Ratings can not be used for replacement parts for automotive equipment under Limitation Order L-158).

A. S. KNOIZEN,
Director of the Mining Division

---

[1] [See PIT AND QUARRY, June 1943, page 51. —ED.]

[2] Quota holders must endorse on their purchase orders the certification phraseology prescribed in CMP Reg. No. 7 as follows:

CERTIFICATION

Preference Rating AA-1
Allotment No.: S-5-3Q43 August
Preference Rating Order P-56
Mine Serial No.....

The undersigned purchaser certifies, subject to the penalties of Section 35 (A) of the United States Criminal Code, to the seller and to the War Production Board, that, to the best of his knowledge and belief, the undersigned is authorized under applicable War Production Board regulations or orders to place this delivery order, to receive the item(s) ordered for the purpose for which ordered, and to use any preference rating or allotment number or symbol which the undersigned has placed on this order.

....
(*Name of company*) (*Address*)
By: ....
(*Name and title*) (*Date*)

P-100 REVOKED.—Preference Rating Order P-100, dealing with maintenance, repair and operating supplies, was completely revoked by the War Production Board June 26.

This order previously was revoked as of April 2, except as to producers in Canada, to whom a serially numbered copy had been issued. Canadian companies are now eligible to apply through the Department of Munitions and Supply, Ottawa, Canada, to the War Production Board for authorization to use the procedures established under CMP Regulation No. 5 to obtain their necessary maintenance, repair and operating supplies.

As a result of this eligibility, WPB has revoked Preference Rating Order P-100 completely.

TRACTOR PARTS.—Control in the distribution of repair parts for track-laying tractors is simplified by Limitation Order L-53-b, amended by the War Production Board as of June 17. The changes made by the amended order do the following:

Permit a purchaser to buy on the same certificate repair parts for more than one tractor belonging to him. Formerly a purchaser of repair parts was required to furnish the dealer with a separate written certificate of his minimum requirements for each track-laying tractor owned by him.

Permit the dealer to group purchase orders for repair parts in one order to the producer, regardless of the category of use for which the repair part was intended. Under the order the total production of the manufacturer is divided on a percentage basis among five use categories (military agencies, war projects, essential civilian, export and miscellaneous). Previously each dealer in forwarding a customer's order for critical parts to the factory was required to state the name of the customer and the type of work being performed by him. The requirement that a separate purchase order be forwarded by the dealer for each customer is eliminated. However, the dealer will keep on file the names of the customers for whom he forwards a particular group order to the factory.

Permit the sale of repair parts to repair and recondition worn or damaged parts or sub-assembles. Previously, repair parts could only be purchased to repair a complete unit.

Eliminate the provision requiring the purchaser of repair parts to retain the used parts that are being replaced.

Relax the requirement that a producer's sales of critical repair parts be apportioned on a percentage basis among the five categories.

Other modifications made by the amendment do not change substantially the original order.

TRUCK PRODUCTION.—The production of 7,500 heavy highway trucks and 241 off-the-highway machines was authorized by the War Production Board, for the third and fourth quarters, the Automotive Division announced July 3.

The trucks are classified by gross vehicle weight and drive types. The number of highway trucks authorized in each are as follows:

Number of Trucks	Gross Vehicle Weight	Wheel Drive
1,500	18,000 to 22,000 pounds	4×2
4,250	24,000 to 30,000 pounds	4×2
1,100	27,000 to 36,000 pounds	4×2
150	27,000 to 36,000 pounds	4×2 Diesel
400	37,000 to 43,000 pounds	6×4
900	25,000 to 32,000 pounds	snow plows
7,500		

The fourteen companies which will produce the heavy highway trucks are:

Autocar Co., Ardmore, Pa.; Brockway Motor Truck Co., Cortland, N. Y.; Corbitt Co., Henderson, N. C.; Federal Motor Truck Co., Detroit, Mich.; General Motors Truck & Coach, Pontiac, Mich.; Four Wheel Drive Auto Co., Clintonville, Wis.; International Harvcester Co., Chicago; Kenworth Motor Truck Co., Seattle, Wash.; Peterbilt Motors Co., Oakland, Cal.; Mack Manufacturing Co., New York City; Reo Motors Co., Lansing, Mich.; Sterling Motor Truck Co., Milwaukee, Wis.; Walter Motor Truck Co., Long Island City, N. Y.; White Motor Co., Cleveland.

The 241 off-the-highway vehicles include trucks, truck tractors and trailers; they will be manufactured by Dart Truck Company, Kansas City, Mo.; Euclid Road Machinery Co., Cleveland; Kenworth Motor Truck Co., Seattle, Wash.; Mack Manufacturing Co., New York City; Peterbilt Motors Co., Oakland, Cal.

TRUCK RENTALS FIXED.— Nation-wide rental ceilings on dump trucks were established July 1 by the Office of Price Administration in an action generally revising the price regulation dealing with construction equipment rentals and service charges.

Major changes contained in the new Amendment No. 9 to Maximum Price Regulation 134 (Construction and Road Maintenance Equipment Rental Prices and Charges for Operating and Maintenance or Repair and Rebuilding Charges) include the adjustment of rental rates which experience showed were too high or too low, and inclusion of several new classes of equipment and improvements in the text for the purpose of clarifying certain misunderstood sections.

Dump-truck rental prices generally lower than current levels are established in a separate appendix of the regulation reprinted below. Hourly maximum rates are provided for fully operated rental as well as three different dollars-and-cents figures for each size of truck. The capacity of the truck and type of loading to which it will be subjected determine the applicable hourly dollars and cents fixed charge. The lessor adds to the fixed charge 135 per cent. of the operator's hourly wage in the area of the jobsite on March 31, 1942 to obtain his maximum hourly rental rate.

The rates allow for fundamental variables encountered in the operation of dump trucks, namely, the nature of the loading device used, the kind of materials hauled, and the distance traveled, and are applicable to every transaction in which dump trucks are used. Provisions are made for issuance of rates other than those established applicable to a specific area or to certain types of service in cases where circumstances require adjustment to meet problems encountered in a particular area. The same adjustment features may be used in cases where state laws conflict with requirements of the regulation.

Maximum rates for "bare" rentals of dump trucks are established on the basis of a percentage of the value of a new truck which is the equivalent of the rented truck. A schedule is provided which sets a definite percentage of these values, depending on the type of loading to which the truck will be subjected. The percentages gives the ceiling monthly rental rate. The maximum weekly rate is one-third, and the maximum daily rate is one-twelfth, of the monthly rate.

The regulation further provides that all repair expenses due to normal wear and tear shall be met by the owners of the trucks, a feature which prevents the owners of old trucks and trucks in poor condition from obtaining what might appear to be a windfall from rates that also cover new trucks.

Maximum rates are also provided for construction equipment mounted on motor trucks or trailers. These rates are made up of the applicable maximum bare rental rate for the equipment, plus a percentage of the selling price of a new truck or trailer equivalent to the rented one. This percentage, on a monthly basis, is 7 per cent. for trucks and 5½ per cent. for trailers. Maximum weekly rates are one-third, and daily maximums are one-twelfth of the ceilings for monthly rates.

One of the principal accomplishments of the action is in bringing dump trucks and truck- and trailer-mounted construction equipment under one regulation and provide a basis for nationwide uniform ceilings. Rental of dump trucks until July 1 were under Maximum Price Regulation 165 (Services) and the General Maximum Price Regulation. The ceilings under these measures were the divergent individual top charges made by lessors during a defined base period. Rentals of truck- and trailer-mounted equipment have been under Regulation 134 and in some cases under Regulation 136, although the rentals of trucks and trailers were under Regulation 165.

Among the many changes resulting from the new amendment the following are the most important:

I. A new section (1399.14) has been added for the purpose of avoiding misunderstanding by incorporating in the regulation five simple rules that have been consistently applied by OPA in interpreting the regulation. These rules are as follows.

(1) When equipment is on "bare" rental and breaks down as a result of normal wear and tear, lessor cannot charge lessee with the cost of repairs, or any rental for time lost while repairs are being made.

(2) Where equipment is on "bare" rental and breaks down as a result of any cause other than normal wear and tear, lessor can charge lessee with the cost of repairs and with rental for possession of equipment during time while repairs are being made.

(3) However, where equipment is on "bare" rental, the lessee may at his own expense always make minor repairs, regardless of the cause of breakdown, where such repairs are necessary to keep the job going, but he may not charge the cost of such repairs to the lessor or deduct the time lost for making repairs from the rental period without the lessor's consent.

(4) In any instance where there is a breakdown of equipment on "bare" rental, the cause of such breakdown is a question of fact that must be determined between the lessor and the lessee.

(5) In any instance where there is a breakdown of equipment on "fully operated" rental, the lessee with any rental, or for any "operating and maintenance service," for the time lost during the breakdown, or with the costs of any repairs occasioned thereby.

Think Before You Talk!

1.—If you heard it . . . don't repeat it.

2.—If you saw it . . . don't tell it.

3.—If you read it in a newspaper or magazine . . . then talk about it as much as you like.

II. The "coverage" section (1399.1) as reworded, shows more plainly than before that the regulation applies not only to regular rental agreements, but to all agreements, for the use of construction equipment, regardless of their form, except one class of agreements. The excluded agreements are those in which the party furnishing the equipment is an "independent contractor" i.e., one responsible to the other party only for a certain result, not the means by which he accomplishes the result.

III. The "maximum rate" section (1399.2) has been changed so that all daily overtime is calculated on the basis of 1/8 of the daily rate for each hour of actual use in excess of 8 hours per day. Weekly overtime is now to be calculated on the basis of 1/96 of the weekly rate for each hour of actual use exceeding 48. Overtime earned in a fraction of a weekly period, beyond one or more full weekly periods, is calculated at 1/7 of the weekly rate for each hour of actual use. Formerly, daily and weekly overtime was figured at 1½ times the basic rate for any "second shift" use and 2 times the basic rate for any "third shift" use. No change is made in the method of figuring monthly overtime.

IV. The "most favorable rate" section (1399.3) is clarified and combined with an old section (1399.5). The net effect is to show clearly that regardless of the contract basis on which equipment is rented, the maximum rental must be determined at the rate most favorable to the lessee, and according to the plain rules set out in this section.

V. The "service rates" section has been expanded and revised so that these points will be clear:

(1) After the effective date of the amendment, no one may legally make or receive payment for operating services in connection with construction equipment, or repair services for construction equipment, unless the person furnishing the services has filed a report of his rates with Office of Price Administration and obtained approval or acceptance of them.

(2) The regulation covers not only all these services furnished by lessors in rentals on a "fully operated" basis but also any repair, rebuilding or overhaul service for construction equipment furnished by any person, in the shop or on the job.

(3) Any one who has not heretofore filed his service rates with OPA, and obtained approval or acceptance, must at once prepare a report as required by this section and get his rate established. An illustration of the form in which the information is desired for operating and maintenance services is included in the regulation. The supplier may follow his own method in reporting on repair and rebuilding service rates.

(4) Approval by OPA of an operating and maintenance service rate establishes the lessor's maximum charge only for work which is similar to that described in his report. For service rates on any dissimilar work, the lessor must file anew.

(5) Anyone who claims sufficient hardship in the continued use of a maximum service rate for either operating and maintenance, or repair and rebuilding, services may file an application for adjustment of his rate by following the procedure prescribed in Section 1390.25a (b) of MPR 136, which has been incorporated as a part of MPR 134.

(6) No lessor is permitted to use as his charge for operating and maintenance services the difference between his "fully operated" rate and Office of Price Administration "bare" rental rates. He must establish his rate by filing the necessary report.

The truck provisions are contained in an appendix which follows:

§1399.16. *Appendix B: Table of rates for dump trucks and truck- and trailer-mounted equipment*—(a) *Dump trucks: fully-operated basis.* (1) The maximum rental price for any dump truck rented on a fully-operated basis shall be a price calculated on the basis of hours of actual use of such truck multiplied by an hourly rate which is the sum of (i) the applicable charge per hour, according to the capacity of such truck, set forth in the following Schedule, plus (ii) 135 per cent. of the hourly wage for the operator of such truck at the rate prevailing on March 31, 1942, in the area of the job-site where such truck is used. "Rate" or "rates" as used in this paragraph means the sum of the aforesaid items.

SCHEDULE

From and including (*cubic yards*)	Up to but not including (*cubic yards*)	Charge per hour (less operator's wages)		
		A	B	C
.....	3.....	$1.50	$1.20	$1.35
3.....	4.....	1.80	1.45	1.65
4.....	5.....	2.25	1.80	2.05
5.....	6.....	2.40	1.95	2.15
6.....	7.....	2.65	2.15	2.40
7.....	8.....	3.25	2.60	2.95
8.....	10.....	3.65	2.95	3.30
10.....	12.....	4.40	3.55	3.95
12.....	.....	4.70	3.75	4.25
Over 12 cubic yards, add for each cubic yard..		.30	.20	.25
On all 3 axle, 10 tire trucks with drive on two rear axles, add...		.40	.40	.40

(2) The capacity of any truck shall be determined by using the water-level capacity of the permanent body, exclusive of the capacity added by sideboards, or other removable extensions or additions. It shall be a violation of this regulation for any lessor to refuse to supply sideboards, on any type of work where he has customarily supplied the same, in order to obtain greater aggregate rental for his trucks.

(3) Column A rates apply where the loading is performed by power loading devices except where the material is processed sand, gravel, crushed stone, or other processed materials in stock piles at a commercial producing plant, at point of construction or at an intermediate point of transfer. A hopper, chute, bunker, or conveyor shall not be deemed to be a power-loading device.

Column B rates apply where the loading is performed by hand and where the average mileage [speed] of the vehicle does not exceed 8 miles per hour for the period of time the vehicle is in use each day.

Column C rates apply where transportation or loading is performed under conditions other than those described for application of Column A or B rates. Column C rates apply where the loading is by hopper, chute, bunker, or conveyor.

(4) On any job where the lessee finds it impossible or impracticable, because of the shifting of trucks from one type of loading to another, to calculate the rental according to the several services rendered by each truck, the lessee may pay, as a maximum rental price for the job, a price calculated on the basis of any rate, or combination of rates, which do not exceed the applicable rates set forth in Column A above.

(5) Irrespective of the basis of contract, in no event shall any rental paid or received for dump trucks exceed the maximum rental permitted by application of the foregoing hourly rates.

(6) In every instance the foregoing maximum hourly rates shall apply irrespective of the length of time that a truck is on the job, except that where the lessor is required to pay his truck operator overtime wages on any job because of overtime operation of the truck, there may be added to the maximum rental the dollar amount, determined according to wage rates in effect on March 31, 1942, of so much of the excess of overtime wages over straight time wages as is actually paid the operator because of overtime operation of the truck.

(7) In every instance rental for any dump truck rented on a fully operated basis shall be calculated, in accordance with this paragraph, as beginning from the time the truck arrives on the job ready for use and as ending when the truck is finally released on the job for return to the lessor, except that where the truck must be moved daily to and from the job, the lessor may charge the lessee an additional hour's rent at the applicable maximum rate for each day that the truck is moved to and from the job.

(8) The Office of Price Administration, or any Regional Office of the Office of Price Administration, or any district office duly authorized by a Regional Office, may authorize for a particular job, an increase in the rental provided by the foregoing hourly rates, not exceeding 10 per cent. of the applicable maximum, where the lessor, prior to charging the higher rental, has satisfactorily shown that his equipment is to be used on such job more than 25 miles from his yard and that his costs will be materially increased by reason of such use.

(9) The Office of Price Administration may at any time by order authorize maximum rental rates for dump trucks rented on a fully operated basis, other than those provided by this paragraph, applicable to any group of lessors, or all lessors, for (i) a designated geographical area, or (ii) a specified type of work.

(10) The following sections of the regulation, where relevant, shall apply to dump trucks rented on a fully operated basis: §§ 1399.1, 1399.4, 1399.7, 1399.8, 1399.9, 1399.10, 1399.11, and 1399.12.

(b) *Dump trucks: bare basis.* (1) The maximum rental price for any dump truck rented on a bare basis shall be a price calculated on the basis of a monthly rate equal to the applicable percentage, according to value of such trucks, as set forth on the Schedule below, of the highest maximum price established by any regulation issued by the Office of Price Administration for the sale to any domestic class of purchasers of the nearest equivalent new dump truck, or the nearest equivalent new truck chassis and the nearest equivalent new extra, special, or optional equipment which may have been added to complete the rented truck: The maximum rate per week shall not exceed 1/3 of the maximum rate per month; the maximum rate per day shall not exceed 1/12 of the maximum rate per month:

SCHEDULE

Maximum price of truck, or chassis and equipment	A	B	C
	Percentage	*Percentage*	*Percentage*
Up to and including $4,500.00.....	9	7	8
Over $4,500.00 to $8,500.00.....	8	6.5	7
Over $8,500.00.....	7	5.5	6.5
Half-track dump trucks.	9	8	7

(2) Determination of truck capacities and application of the foregoing rates shall be governed by the provisions of paragraphs (a) (1), (2), (3), and (7) of this section.

(3) In every instance rental for dump trucks leased on a bare basis shall be calculated as beginning at the time trucks are delivered into possession of the lessee, and as terminating at the time when trucks are delivered back into the possession of the lessor.

(4) The following sections of the regulation, where relevant, shall apply to, and govern, the rental of dump trucks rented on a bare basis: § § 1399.1, 1399.2, 1399.3, 1399.4, 1399.7, 1399.8, 1399.9, 1399.10, 1399.11, and 1399.12.

(5) Maximum charges for partial operating and maintenance services supplied by lessors in connection with the rental of dump trucks, not amounting to a fully operated service, shall be charges established in accordance with the applicable provisions of § 1399.5.

(c) *Truck- and trailer-mounted equipment.* (1) The maximum rental price for any combination machine consisting of any construction or road-maintenance equipment mounted on automotive trucks or trailers and rented on a bare basis shall be a price calculated on the basis of a monthly rate which shall be equal to the sum of the following: (i) the maximum monthly rental rate for such equipment in accordance with § 1399.15, Appendix A, and (ii) a maximum monthly rental rate for the truck or trailer equal, for trucks to 7 per cent. and for trailers to 5½ per cent. of the highest maximum price established by any regulation issued by the Office of Price Administration for the sale, to any domestic class of purchaser, of the nearest equivalent new truck or trailer or the nearest equivalent new truck or trailer chassis and the nearest equivalent new extra special, or optional equipment which may have been added to complete the rented truck or trailer. Maximum weekly rental rates shall not exceed 1/3, and maximum daily rates shall not exceed 1/12, of the foregoing maximum monthly rates.

(2) Maximum charges for operating and maintenance services supplied by lessors in connection with rental of truck or trailer mounted equipment, whether amounting to a fully, or partially, operated service shall be charges established in accordance with the application provisions of § 1399.5.

(3) The following sections of the regulation shall, where relevant, apply to, and govern, the rental of truck- or trailer-mounted equipment, whether on a bare, or a fully or partially operated, basis: § § 1399.1 to 1399.12, inclusive.

WELDING ROD.—Welding rod used for manufacturing purposes may not be treated as an operating supply under CMP, the War Production Board announced on June 26, even though it is carried as an operating supply under the manufacturer's established accounting practice.

MAGNESIUM . . . . Critical War Metal

An Article Outlining the Three Methods Used in Its Production and Describing the World's Largest Plant at Las Vegas

By HARRY A. STELLEY, Mechanical Engineer, Basic Magnesium, Inc.

another P.O. AND exclusive

WE can not, for very good reasons, show a picture of the plant of Basic Magnesium, Inc. near Las Vegas, Nevada, as it is today, but such a picture would show the largest plant in the world producing magnesium from the ore. This plant is the visible evidence of the efforts of several men, in particular, who had a keen understanding of some of the needs of the near future, and who were willing to work in order that a good part of one of those needs could be supplied.

During 1931 Howard P. Eells, Jr. (president of Basic Refractories, Inc., Cleveland), John W. Lowman (president of Basic Ores, Inc., a Nevada corporation), and George B. Thatcher (of the firm of Thatcher & Woodburn, western counsel of Basic Refractories, Inc.) made an investigation of the possibilities of magnesium, and located some claims on a magnesite deposit in Gabbs Valley, in the Paradise Range, 32 miles over rugged mountains and desert from the nearest railroad and state highway at Luning, Nevada.

At a conference attended by Congressman (now U. S. Senator) James G. Scrugham (who had been state engineer and later Governor), U. S. Senator Berkley L. Bunker (who had succeeded the late Key Pittman), U. S. Senator Pat McCarran, Governor E. P. Carville, State Engineer Alfred Merritt Smith, all of Nevada; Charles De Armond, secretary of the Colorado River Commission; and George B. Thatcher, Mr. Eells told of his investigations regarding magnesium, and succeeded in convincing these that magnesium had a real future, and that Nevada, with a wealth of rich magnesium ore, and great supplies of water and low-cost electricity, was the logical location for a large plant to produce this valuable metal.

Mr. Eells and his associates worked unceasingly. On a business trip in Canada Mr. Eells met N. K. Pitt, president of Canadian Refractories, Ltd., and learned that Magnesium Elektron, Ltd., of Manchester, England, was considering building a magnesium plant in Canada to relieve the British shortage. Magnesium Elektron, Ltd., secured, about 1936, from I. G. Farbenindustrie

On this site in Gabbs Valley has risen the huge new plant of Basic Magnesium, Inc.

(A-G), a license to manufacture "Elektron" (the German trade name for magnesium manufactured by the electrolysis process), and had started producing magnesium in England in 1937. After negotiations with Magnesium Elektron, Ltd., Mr. Eells, Jr. and his business associates secured a license to manufacture magnesium in the United States by its process. After securing the license to manufacture magnesium, Basic Magnesium, Inc., was formed with H. P. Eells, Jr. as president, Major C. J. P. Ball as vice-president and J. E. Heidgen as secretary and treasurer.

Representatives left England early in May, 1941 to complete negotiations, and technical representatives left a week later with approximately 5,000 complete detailed drawings covering the Magnesium Elektron, Ltd. plant and process. The ship was hit by a torpedo and sank in midocean. With the exception of three persons, all on board were saved, the crew being returned to England, while the passengers were transferred to a ship sailing for Halifax. The original plans were microfilmed, and the films were rushed *via* bomber to the United States, arriving a few days after the technical representatives reached Cleveland.

In July 1941 a contract was entered into between the Defense Plant Corporation and Basic Magnesium, Inc. for the construction and operation of a plant to produce 112,000,000 pounds of magnesium yearly. Both parties began immediately their respective parts in awarding and closing contracts for building the plant, for water and power, and for electrical and other equipment. The McNeil Construction Company of Los Angeles received the contract for building the major part of the plant and for installing the major part of the equipment; the MacDonald Engineering Company, Chicago, for engineering and construction of the reinforced-concrete silos and special buildings; Engineers, Ltd., Los Angeles, for the construction of the pumping and booster station, water lines, reservoir; Fritz Ziebarth, Long Beach, California, for construction of the high-voltage transmission lines; the Hooker Electrochemical Company, Niagara Falls, New York, for furnishing and installing the electrolytic cells; the General Electric Company, the Allis-Chalmers Manufacturing Company, and the Westinghouse Electric & Manufacturing Company, for transformers, mercury-arc rectifiers, motor generators and other substation and electrical operating equipment; the Louis Allis Manufacturing Company, Milwaukee, for motors; The Allen-Bradley Company, Milwaukee, for starting apparatus, switchboard equipment, etc.; and many others for somewhat smaller but important contracts for other electrical, mechanical and chemical equipment. The H. K. Ferguson Company, Cleveland, received the contract for engineering for the chlorine and caustic-soda plants; M. J. Montgomery & Company, Los Angeles, for engineering for power transmission lines, substations, and for pumping stations. The Southwestern Engineering Company, Los Angeles, received the contract for engineering the magnesite-ore treatment plant; and the Macdonald Engineering Company, Chicago, for the construction of the plant at the mine in Gabbs Valley, Nevada.

Defense Plant Corporation and Basic Magnesium, Inc. immediately opened in temporary quarters, the executive, engineering, purchasing and accounting departments. Plans were prepared for the administration building and as soon as it was completed, the offices were moved to the plant site. Plans were also drawn for the first unit of the plant, and a railroad line was built from the Union Pacific Railroad. Supplies were received in large quantities, and the job was started on a 24-hour schedule.

What appeared at first to be a severe set-back passed with almost no loss of time, when on March 6, 1942, at about 9:30 p.m., the administration building was destroyed by fire. Fire Underwriters examined and released the site, and at 2:00 p.m. March 7th McNeil Construction Company started rebuilding. On March 13 at 4:00 p.m. the several departments, which had been working in temporary quarters in the construction company's warehouse buildings, moved into the new building. New office equipment and drafting tables were in place, with electric lighting, heating system, drinking fountains, washrooms, and sanitary facilities installed and in working order. The building covering 56,000 square feet of floor space had been built in 146 hours. Although the Basic Magnesium, Inc. plant has a high priority rating, there are many other defense plants in this territory, and it is only because of the very efficient system of "follow through" of orders for materials that a high average rate of construction has been maintained.

On October 28, 1942, the Anaconda Copper Mining Company purchased the controlling stock in Basic Magnesium, Inc. owned by Howard P. Eells, Jr. and his associates. This stock, amounting to 52½ per cent., was bought for $75,000. The Defense Plant Corporation bought the ore properties at Gabbs Valley for $450,000.

The officers of Basic Magnesium, Inc. are J. R. Hobbins (president of Anaconda) president; Frederick Laist (vice-president of Anaconda in charge of metallurgical operations) vice-president; and Major C. J. P. Ball (chairman of the board of Magnesium Elektron, Ltd. of England and vice-president of the original Basic Magnesium, Inc.) vice-president. Mr. Hobbins and Mr. Laist, together with Cornelius Kelley (chairman of Anaconda) and Edward J. Barnsley (chairman of Imperial Chemical Industries, New York) are new directors.

F. O. Case is appointed general manager of operations; H. G. Satterthwaite, general superintendent; J. R. Coulter, superintendent of production, with J. R. Charles and Dr. S. J. Fletcher, originally with Magnesium Elektron, Ltd., as assistants to Mr. Satterthwaite.

Magnesium was first isolated by Sir Humphrey Davey in 1808. Bussy reduced the chloride with potassium in 1830, Sonstadt with sodium in 1863. Bunsen first produced magnesium from the chloride by the electrolysis method in 1852. The development of this method, however, was very slow, and it was not until 1886 that the process was really operative and dependable. By this process magnesium metal was deposited at the cathode and chlorine was liberated at the anode of the cell. This is still the method most used. It requires large quantities of electricity at low cost from a dependable source.

A second method is known as the Hansgirg process, developed by Dr. Fritz J. Hansgirg, an Austrian Chemist. By this process—the reduction of magnesium oxide with carbon by electricity—the oxygen combines with the carbon, leaving the magnesium in the form of a vapor, which is rapidly cooled by large quantities of hydrogen gas. Commercial plants, using this method, were built in Austria, Korea and Wales. The magnesium plant, built by the Permanente Chemical Corporation at Permanente, California, used this process except that natural

Howard P. Eells, Jr. (center), president of Basic Magnesium, Inc., snaps the switch to start production at the Gabbs Valley magnesium-oxide plant. At the extreme right is Howard C. Mann, project manager. With a whirr, the world's largest plant of its kind began to roll. It was the first of actual operations for the B.M.I. project. Others in the picture commencing on the left are: G. H. Shattuck, vice-president, Southwest Engineering Company; N. B. Thomsen, project manager, Macdonald Engineering Company; R. M. Crawford, supervising engineer, Defense Plant Corporation; W. W. Patnoe, project manager at Gabbs; Harley C. Lee, manager of technical services; Dr. S. J. Fletcher, British consultant; Thomas R. Cook, general manager of engineering; J. E. Ryan, acting general superintendent, shops and services; Major C. J. P. Ball, vice president of B.M.I.; R. C. Kelly, director of purchases, B.M.I.; R. E. Phelan, manager of operations; George P. Burpee, partner in the firm of Coverdale & Colpitts, consulting engineers; D. W. Stewart, assistant project manager, B.M.I.; and Clyde E. Collins, chief development engineer at Gabbs.

gas was used instead of hydrogen. The construction of this plant was started in February 1941, and the plant started in operation in the following August.

A modification of this process has been developed by H. A. Doerner, metallurgist, U. S. Bureau of Mines, Pullman, Washington, whereby a vaporized hydrocarbon, such as fuel oil, is used to cool the magnesium vapor, with the oil removed by distillation.

A third method, known as the ferro-silicon process, was first developed in Germany and then in England, and was later further and more completely developed by the Canadian National Research Laboratory. This process interested Mr. Ford, and the chemical and metallurgical laboratories of the Ford Motor Company continued the research and made considerable progress.

The U. S. Government needed magnesium and, at its instigation, the National Academy of Sciences Magnesium Committee was formed to decide on a method of producing magnesium. After thorough investigation it decided that the ferro-silicon process would give satisfactory results considering the low cost of the plant, the short time required to start operation, and the less electricity required.

Using this method, the ferro-silicon—made in an electric furnace from iron, silicon and carbon—is reduced to a coarse powder by crushing. Dolomite, a natural magnesium-calcium carbonate, found in large quantities in the United States, is first calcined and then mixed with the crushed ferro-silicon in the proper proportions, and reduced to a fine powder by the use of a ball-mill. The mixture is sent to the magnesium smelter, where it is first made into briquettes, preheated above the furnace by using exhaust gases from this furnace, and then charged into the furnace tubes.

The furnace consists of a large brick oven, with tubes through the furnace and extending for a short distance through the front and rear walls, the ends of the tubes being fitted with tight doors.

A high vacuum is maintained in the tubes by large vacuum pumps connected by pipes to the ends of the tubes, which are heated to the required temperature. by coke-oven gas, burning at several gas jets on each side, in the furnace. The high temperature and vacuum vaporize the magnesium, the vapor being carried to the end of the tubes through the wall, where it is deposited on the special fitted liner plates, air-cooled. After approximately 8 hours operation the liner plates, with the magnesium, are removed and the residue is cleaned out. Other liners are inserted. The tubes are recharged with briquettes, and the next cycle is started.

Basic Magnesium, Inc. uses the first, or electrolysis method. Pulverized magnesite and the calcined product, magnesium oxide, are brought from the plant at Gabbs Valley to the electrolysis plant in

railroad box cars, unloaded by the use of Fuller-Kinyon equipment and stored in concrete tanks 40 feet in diameter and approximately 90 feet high. It is then mixed with pulverized coal and peat, and other ingredients and formed into pellets or bricks. The pellets are passed through a rotary kiln, and the brick through a tunnel kiln, at temperatures high enough to evaporate the water.

These pellets and bricks are then fed into a chlorinator, a large, high and round furnace lined with refractory brick, and heated by electricity to a high temperature. Here the pellets and bricks are melted. As they melt a stream of chlorine gas passes into the chlorinator, combining with the magnesium to form magnesium chloride, and liberating the carbon and oxygen in the form of carbon dioxide. Common salt is used in the manufacture of chlorine gas with caustic soda as a by-product. The molten magnesium chloride is drawn off and placed in the electrolysis cell, heated with low-voltage, high-amperage current, using iron bars as the cathode and carbon bars as the anode, and the separation of the magnesium is accomplished. The electrolytic process is a continuous operation, the magnesium, practically pure, being removed daily.

The mine at Gabbs Valley has been in operation for several months. The ore concentrating and treatment plant is the world's largest magnesium-calcining plant. It is built to produce more than 150,000 tons of magnesium oxide per year, and will supply the magnesium plant with one of its most essential raw materials.

Approximately 900 men were employed by Southwestern Engineering Company and Macdonald Engineering Company in designing and constructing the Gabbs Valley Plant. Started in December 1941, the plant was put in operation on June 22, 1942, by Howard P. Eells, Jr., president, who, with 56 officers and guests of the Defense Plant Corporation and Basic Magnesium, Inc., made a tour of inspection of the mine and plant.

The magnesium ore, "magnesite," exposed in several places on the mountains above the mill, is shot down, loaded by gas-air shovels into trucks, and brought down to the mill over a well-built road and comparatively easy grades.

At the mill the ore is dumped directly into a hopper over a 36-inch Allis-Chalmers Superior McCully primary gyratory crusher. A 36-inch belt-conveyor carries the material to a feed bin, from which it may be transferred on a 24-inch belt to a 24-inch belt stacker conveyor for placing on a storage pile. A 24-inch belt-conveyor in a tunnel under the storage pile brings it back to the feed bin.

From the feed bin it is fed to 30-inch sorting conveyors, where the waste material is picked off and placed on a 20-inch belt-conveyor for delivery to the waste pile on the mountain side.

The sorting belts deliver to 28-inch collecting conveyors, which carry the material to 5- by 12-foot Ty-Rock single-deck vibrating screens, with the over-size delivered by chutes to 5½-foot Symons Shorthead cone crushers. Elevators and a belt-conveyor deliver the crusher product to the tops of the fine-ore bins, from which it is drawn to Weightometers and then to Allis-Chalmers 6½- by 10-foot ball-mills, where it is ground to pass approximately a 200-mesh sieve. It is then washed down chutes into Akins spiral classifiers, the rejects are passed back to the ball-mills, and the fines are pumped to conditioning tanks.

From the conditioning tanks the material is pumped to a Dorrco 100-foot diameter overflow thickener, or to Dorrco flotation cells. From these flotation cells it is flumed to flotation cleaning cells. From the flotation cleaning cells it is pumped to Akins 54-inch by 33-foot spiral classifiers, the fines going to a Dorrco 50-foot diameter thickener and then either to the Dorrco 100-foot diameter overflow, or a Dorrco 100-foot thickener underflow thickener; or from the flotation cleaning cells it may be pumped to other Akins 54-inch by 33-foot spiral classifiers, the fines going to the Dorrco 100-foot diameter tailings thickener. The rejects from the classifiers are returned to the flotation cleaning cells. This material is pumped from the Dorrco tailings thickener, the overflow, and the underflow thickeners to a clear-water tank, is washed, and is then sent to Dorrco filters, or the fines may be sent direct from the last Akins spiral classifiers directly to the Dorrco 14- by 18-foot filters. It is then delivered to 7½-foot-diameter by 60-foot-long Ruggles-Coles revolving driers. Fans pick up the fine dust and deliver it to dust-collectors. From these driers and collectors it is delivered by chutes to screw-conveyors and then by elevators to the magnesite-concentrate ($MgCO_3$) storage bins.

It may be drawn from these storage bins into loading bins, where it is loaded into special trailers, or it may be fed to elevators which deliver it to Herreshoff roasters 22¼ feet in diameter 14 hearths high designed and manufactured by the Pacific Foundry Company, Ltd. Each roaster is equipped with dust-collectors, from which the dust is chuted to conveyors, and the material is also dropped directly from the roasters on these conveyors, which carry it to revolving, 5-foot-diameter jacketed 45-foot-long cylinders, which have the jacket perforated and immersed in water on the bottom side, and water dropping on the barrel of the cylinder to cool the material.

Elevators deliver the calcined product (MgO) to the top of the storage bins, from which it is drawn to loading bins, where the special trailers are also loaded.

The special trailers are hauled to Luning, Nevada, where the material is dumped into hoppers. From these hoppers it is moved by Fuller-Kinyon equipment to storage bins, or it is loaded directly into specially prepared box cars and hauled by railroad to the Las Vegas magnesium plant.

It was first planned to haul the special trailers by Diesel-powered trucks directly to Las Vegas, but the demand for rubber for war use changed that plan, and the car-loading storage was built and equipment installed at Luning with no loss in time.

The difference between high and low levels in Lake Mead is around 180 feet in a normal year. The deep-well pumps are submerged over 190 feet at high water. These pumps have a capacity of 44,000 gallons per minute at high water. The total lift to the 30,000,000-gallon reservoir at the magnesium plant is approximately 630 feet, with a booster station 250 feet above the pumping station. The pipe line is 40 inches in diameter and 14 miles long, and weighs approximately 14,500,000 pounds. The plant, in full operation, will use approximately 22,000,000 gallons of water a day.

The plant site, including the fresh-water reservoir, the effluent settling basin, and the Basic town site with the sewage-disposal plant, covers approximately 1,500 acres. Over 4,500,000 cubic yards of earth has been moved; 50 miles of highways and 26 miles of 110-pound rail standard-gage railroad have been built.

The Basic town site, Victory Village, consists of 1,000 demountable 2- and 3-bedroom houses, which are fully occupied, and the women's

dormitories. The women's dormitories consist of twelve buildings with 58 single and double apartments, with room for about 100 women. The twelve buildings are connected by covered arcades.

Each house is equipped with an ample capacity air-cooler, refrigerator and stove, all electric. The landscaping is included in the appropriation for Victory Village, and the green lawns and shade trees will soon be planted. The streets are of ample width, some straight, and some irregular curving. The effect will be pleasing when the landscaping is completed. Victory Village will also be "Beautiful Village."

The 12-grade combination grade and high school building, with ample study and class rooms for 1,000 pupils, was dedicated October 3, 1942, with appropriate ceremonies. School was "started" on October 5 by the principal and 20 teachers.

A contract has been awarded to O. J. Sherer of Las Vegas, Nevada, and construction already started, to build 75 "temporary" houses of concrete blocks. Each house is divided into two sections of two apartments, a total of 300 apartments. Each apartment is equipped with the same electrical equipment as the houses in Victory Village.

At the peak of construction over 3,200 persons were employed in the executive, engineering, purchasing and accounting departments by the Defense Plant Corporation and Basic Magnesium, Inc. and over 13,500 in construction. At the present time the Defense Plant Corporation and Basic Magnesium, Inc. have approximately, 4,500 persons employed in the several departments including plant operation, while approximately 7,500 are employed in construction.

During the building of Boulder Dam, a high safety record was made, with one death for 310,000 manhours worked. The McNeil Construction Company, with an efficient and active safety department consisting of a safety engineer and three assistants, with full power to enforce safety rules, has made a record of one life lost for every 2,500,000 manhours worked. It has been given an award, the title of which reads: "Highest Safety Record in the United States for this Type of Construction."

This record was made in the desert, with desert heat, with the desert sun by day, artificial lighting at night, with the air at times filled with fine desert dust, constantly moved by shovels, cranes, and bulldozers, and stirred by the wheels of countless trucks, all operating the full 24 hours of the day and night; and by the hot wind that seems to come into the desert from every direction.

The Basic Magnesium, Inc. plant is the largest electrical installation in the history of American industrial construction. Copper for bus bars for this equipment amounts to several thousand tons. Copper is one of the critical strategic materials, and the demand for war purposes takes about all the mines can produce. Copper is a very good conductor for electricity, but silver is the No. 1 conductor, and the use of silver as a conductor of electricity will not deteriorate it in any way. The U. S. Government has thousands of tons of free silver, not ear-marked as collateral for paper money issued.

Some of the copper bus bars are already in place or in transit. But the order was not all shipped, and so the U. S. Government decided to lend to the Defense Plant Corporation enough silver to complete the order and release the copper for war purposes. A substantial amount of silver, in bars 16 feet long, 8 inches wide and ½ inch thick, all machined and ready for use, will soon begin to arrive, to be used until peace comes again.

The search for a dependable method of producing magnesium, was practically stopped during World War I, except in Germany, where research was continued without interruption, and in the United States, in a lesser degree. In Germany the Chemical Fabrik Griesheim Elektron and, later, the I. G. Farben-industrie A-G, developed the electrolysis method to a point where they were successfully producing magnesium free from impurities, using the ore "Carnalite", which is a chloride of magnesium and potassium. The Wintershall Potash Company operates the principal "Carnalite" mines, and it has an unlimited supply of ore. After the war its low cost enabled it to export magnesium to be used in competition with aluminum and the use of magnesium in industry increased rapidly.

The Dow Chemical Company has, since 1915, been working with the electrolytic process in making magnesium from natural brines. The American Magnesium Corporation was also using this process but stopped making magnesium in 1927, giving its entire attention to the fabrication of magnesium alloy material. From 1927 to 1941 the Dow Chemical Company was the only producer of magnesium in the United States. It is interesting to know that Magnesium Elektron, Ltd. is giving to Basic Magnesium, Inc., all its accumulated experience in the refining, alloying and fabrication of magnesium, very valuable information now, in that this part of the process of producing magnesium ready for use for war purposes, or for industry, is just as complex as the production of the pure metal.

Magnesium is found in large quantities in the United States in the ore form, as well as in the form of brines and natural bitterns.

In the ore form, it appears as brucite, magnesite, dolomite and serpentine. In the pure form brucite contains approximately 41 per cent., magnesite 28 per cent., dolomite 14 per cent., and serpentine approximately 26 per cent. of magnesium. The brucite, magnesite and dolomite deposits in the United States will last indefinitely, and the extraction of magnesium is comparatively easy. No satisfactory method has yet been developed for separating the magnesium from the silicon in serpentine. There are very large deposits of serpentine in the United States.

Of the brines, the ocean waters and Great Salt Lake contains fabulous amounts of magnesium. It has been estimated that the ocean waters contain 5,000,000 to 6,000,000 pounds of magnesium in each cubic mile of water.

Natural brines are brines in which, over long periods of time, the sodium chloride (common salt) has become crystallized by evaporation, leaving the other salts in a concentrated solution. This solution is called a bittern. There are bitten wells at Saginaw and Midland, Michigan. The Dow Chemical Company has a plant at Midland, using the electrolytic process, operating since about 1915, which has produced the largest part of the magnesium produced in this country.

In 1941 the Dow Chemical Company started building a magnesium plant at Freeport, Texas, to use ocean waters. The plant was enlarged, first at the request of the British government, then by the Defense Plant Corporation. This plant, producing 12,000,000 pounds a year in 1941, now produces at the rate of 54,000,000 pounds a year.

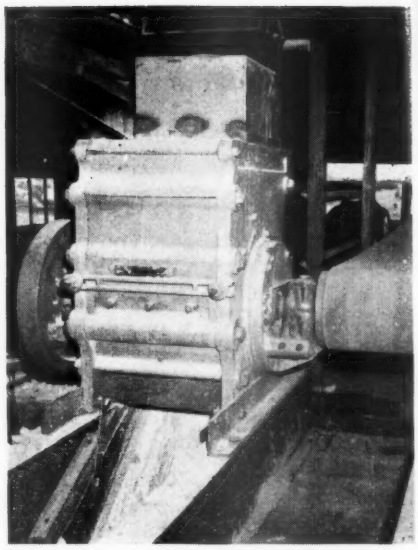
The Defense Plant Corporation has a contract with the Dow Chemical Company for another plant at Freeport to produce 72,000,000 pounds a year, a total of 126,000,000 pounds a year for the two plants at Freeport.

The Defense Plant Corporation also has a contract with the Dow Chemical Company to build a plant in Michigan, to produce 144,000,000 pounds a year, from bitterns, making Dow's production 270,000,000 pounds a year, when all plants are operating.

The ferro-silicon process developed by Ford-Union-Dominion Research has resulted in plants being built by the Ford Motor Company, the Union Carbide & Chemical Company, the American Metal Company, the National Lead Company, the New England Lime Company, and The Permanente Chemical Corporation, with a total production of 180,000,000 pounds a year, using this process.

The Mathiesen Alkali Works, Inc., and the Diamond Alkali Company each have a contract with the Defense Plant Corportion for two plants each with a total production of 36,000,000 pounds a year.

The Bureau of Mines has been for several years, and is now, keenly interested in developing a more simple process of producing magnesium. The research laboratories of the several companies now producing magnesium, or building plants for producing it, are also searching for a more economical method of production. It is hoped and firmly believed that, out of this great war effort, will be developed methods of producing this and many other useful materials, in successful competition with other countries, while maintaining our high standards of living and wages.



Hammer-mill used for fine crushing.

Long-Idle Plant Back in Service

SOME years ago a small crushed-stone plant was built on U. S. Highway Number 49 about three miles south of Manteno, Illinois. As is too often the case, it was found after the plant was ready to operate that the limestone deposit was not suitable for the manufacture of certain products. After a short period of operation the plant was shut down and stood idle until this year. Then E. A. Howard, president, and E. H. Lowderbaugh, vice-president of the Le Grand Limestone Company, looked the property over and decided that it could be operated profitably from another deposit of limestone a short distance north of the plant. Accordingly, the Manteno Limestone Company was formed by Mr. Howard and others and on March 15 took over the property. The only change necessary to put the plant back in operating condition was the installation of a vibrating screen and a new hammer-mill. The rehabilitated plant was in operation on June 18. It has a capacity of less than 100 tons per hour, but it is expected that this capacity will be attained when a larger primary crusher is installed.

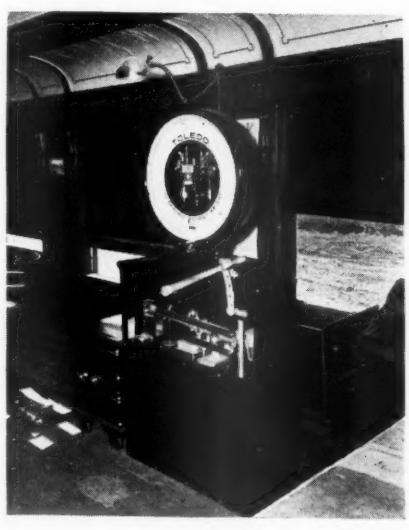
At present two Bucyrus-Erie steam shovels, one of 1- and the other of 1¼-cubic yards capacity, are being used for stripping and loading. The drilling is done with a Bucyrus-Erie truck-mounted well drill and jack-hammers. A portable electric pump is used for quarry drainage.

The stone is hauled by two 5-cubic yard dump trucks to the 12-inch Traylor Bulldog gyratory primary crusher. This will be replaced by a 20-inch machine. A belt-conveyor carries the stone to the secondary crushing building where the stone is ordinarily discharged into a 6-inch Allis-Chalmers McCully gyratory crusher. When small rock is desired any of, or all, this material can be diverted into a Number 22 Gilson hammer-mill. A second similar mill will later be installed further to increase the output of fine material.

The products of both crushers are carried on the same belt-conveyor to a 4- by 10-foot Simplicity double-deck vibrating screen. This usually makes minus-¼-inch dust, and ¼- to 1-inch and 1- to 2½-inch crushed stone. The wooden truck-loading bin has a total capacity of 600 tons.

The plant office is a converted railroad coach and this also houses a Toledo 42,500-pound-capacity Toledo dial scale for weighing truck shipments. On the property there is also a small machine and repair shop which is well-equipped for making minor repairs.

Plant of Manteno Limestone Company with primary and secondary crushing building in background.



Truck scale in the remodeled railroad car used as office.

Big Construction Program Seen as Key to Post-War Prosperity

EXPANSION factors in the American building industry, as revealed by continuing data from several hundred construction news reporters in the field employed by it, and by research and the analysis of these and other data by its specialized personnel, have led the F. W. Dodge Corporation to set up a committee of its top-flight executives to study and review proposals to meet fully all changing information needs of the industry during the war period and thereafter.

The Development Committee is comprised of Thomas S. Holden, president; Irving W. Hadsell, vice-president in charge of the Construction News Division; and Chauncey L. Williams, vice-president in charge of Sweet's Catalog Service Division. Mr. Holden is chairman of the committee. The committee will be assisted by Maurice Holland and Franklin H. Johnson, market research consultants.

In a review of some of the corporation's findings on the potential post-war construction market, Mr. Holden said: "The potentialities of great economic expansion and prosperity for the United States, with its great resources, technological development, enlarged productive facilities, high level of income and outstanding position in world affairs, are enormous. With sound policies and good management, with reference to our domestic affairs and to international relationships, this country should enjoy hereafter a greater prosperity than it or any other country has ever had.

"Such prosperity can not be achieved without enormous construction activity. Careful appraisal of long-range prospects indicates that the decade following the war should have a larger volume of construction than any previous decade in our history. Immediately after the war the government will be obliged to adopt policies that will encourage wide-scale investment in new enterprises in order that we may carry our big debt load attributable to the war, and in order that we may maintain reasonably full employment and utilize our vastly improved and augmented industrial-plant capacity," Mr. Holden said.

The principal potential expansion factors, as listed by Mr. Holden, are the following:

1. *Revival of the Automotive Industry* — The transformations in modes of living and community patterns wrought by the automobile have not been completed. Much is yet to be done in developing bus and truck terminals, hard-surfaced highways, revamping street and open-space patterns of cities and towns.

2. *Aviation* — Commercial aviation, including fast freight service, is due for a vast expansion. The private plane may become a really important transportation factor. Whether this development in transportation, practically certain to come on a large scale, will become as great a stimulus to general industrial and business expansion as railroads and automobiles have been, remains to be seen. In any case, hangars of many varieties and sizes, airports, passenger and freight terminals and many as yet unknown accessory buildings will be required.

3. *Light Metals and Synthetic Materials*—War needs have caused enormous expansion of aluminum production; they have practically created a magnesium industry; they have brought into being new plastic materials and expanded production of others; and have created a synthetic-rubber industry. Producers of all these materials are at this moment conducting product and market research in the peace-time uses of these goods. These materials will be used in industrial products, airplanes, automobiles, household conveniences, art objects and in many other ways. Their development as structural materials may conceivably revolutionize construction methods, architectural styles, and furniture design. It is very difficult to see any limits to the expansion possibilities of these materials, newly available in vast quantities at low prices.

4. *New Construction Materials and Methods*—New materials and new construction methods, producing greater values per building dollar, will inevitably increase the demand for low-cost buildings of every classification, particularly houses. War-construction requirements, with the paramount needs of speed and economy in the use of scarce materials, are daily modifying traditional design ideas and construction procedures.

Among other things, the makers of prefabricated houses have for the first time found in the war-housing program quantity orders for houses, creating an opportunity for the practical development of techniques and demonstrations of potentialities that did not hitherto exist. Undoubtedly such developments will have some lasting effects upon construction methods and procedures, though the importance of the prefabricated house itself as a factor in the future housing market is still problematical, probably depending more upon future possibilities of quantity orders for houses in reasonable continuity than upon technical developments.

In any case many of the technical developments of the war period will persist. To the extent that they will provide better buildings for less money, they will contribute largely to expanding the construction market of the future.

5. *Housing*—The housing revival of the late 1930's, interrupted during the period of war restrictions except for buildings in the war-housing classification, will doubtless be resumed. In part the housing program will make up deficiencies of the last depression period. Its continuation will depend upon the degree of general prosperity (high national income and full employment) the country will enjoy. If national income averages over $100,000,000,000 annually in the 1940 decade, as seems highly probable, housing demands will be very great and will continue for an extended period. There will be a much greater demand proportionally for houses to cost over $6,000 than in the 1930 decade; not only because there will be some surpluses of lower-priced houses directly after the end of the war, but also because higher national incomes mean more families moving into higher income brackets and demanding better houses than they lived in before. The expanded housing market will be largely a market for private building and investors. The possible extent of any government housing program is purely conjectural at this time.

6. *Urban Redevelopment*—Redevelopment of blighted urban areas, talked about a great deal during the past decade, is more than likely to develop into real large-scale programs. A number of people are ad-

(*Continued on page* 60)

Recent Research Developments In Field of Cement, Concrete

WITH a registered attendance of 1,452 members and guests attending the meetings, the forty-sixth annual meeting of the American Society for Testing Materials held in Pittsburgh, June 28 through July 1 was outstanding. The attendance was the third highest ever recorded at a meeting, exceeded only by the 1937 meeting in New York and the 1941 meeting in Chicago.

Many important actions on standards and discussion on the results of numerous research investigations featured both the formal technical sessions and the committee meetings. At no previous annual meeting has there been greater interest in technical work; the attendance and actions at the over 200 committee meetings were at peaks. All these factors indicate the importance with which industry and branches of the government concerned view A.S.T.M. work in the materials field.

At the Society's general session, the new president for 1943, Dean Harvey, materials engineer, Westinghouse Electric & Manufacturing Company, was introduced as were the other new officers.

A measure of accomplishments in standards work is represented by the number of new specifications and tests approved at the meeting, which this year number about 50, comparing very favorably with 1941 and 1942, and on top of this has been constant work throughout the year on emergency specifications and provisions which are issued from week to week.

A study completed just before the meeting by Committee E-9 on Research indicated notable advancement in a large number of the Society's research investigations in both field and laboratory work. Several new projects considered of importance in the present emergency were initiated and pushed during the year.

Continued intensive interest in many of the problems in the field of cement, concrete, and concrete aggregates was evident from the two technical sessions devoted to these problems and from the excellent attendance and discussion at the large number of technical-committee meetings preceeding the sessions. In addition to the reports of Committee C-1 on Cement and C-7 on Lime, the session on cementitious materials featured five technical papers and there were also five papers at the closing session on concrete on Thursday evening, July 1, as well as the reports of Committee C-9 on Concrete and Concrete Aggregates and of the Committee on Refractories.

Two actions recommended by Committee C-1 on Cement were approved by the Society session—one, a change in the Tentative Method of Test for Compressive Strength of Portland-Cement Mortars (C 109-37 T), the principal modification being an increase in the tolerances for the distance between compartment faces of used molds for the 2-inch cubes.

Of interest also was the approval to refer to Society letter ballot for adoption as standard the Tentative Method of Test for Autoclave Expansion of Portland Cement (C151-40 T) with some changes. In its development stages and during approval as a tentative test the question of autoclave expansion received very intensive discussion and there were many differences of opinion concerning it.

The printed C-1 report included a very interesting discussion or notes on the effect of alkali in cement on the durability of concrete with contributions from R. F. Blanks, W. C. Hanna, F. H. Jackson and others and an appended bibliography compiled by Mr. Blanks. In Pittsburgh there was an open subcommittee meeting on this subject at which interested parties exchanged notes and comments on problems involving concrete disintegration.

A study was given by Leo Shartsis and E. S. Newman, National Bureau of Standards, of the heat of solution procedure for determining the heat of hydration of Portland cement. The reproducibility measurements made in accordance with Federal Speciafications, SS-C-158a were described and also data obtained by a modified method, found to be more precise. The temperature coefficients of the heat of solution of a dry cement sample and of the hydration of Portland cement were found to be —0.2 and +0.1 cal. per g. per deg., respectively, in the range 20 to 30 C. The authors discussed a number of proposed changes and additions to the federal method.

J. C. Pearson, director of research, Lehigh Portland Cement Company, gave an interesting discussion on *Measurement of Bond Between Bricks and Mortar,* describing an extensive research which was undertaken to develop better methods of test and particularly to develop a method imitating job conditions and manipulation without involving too many uncontrolled variables.

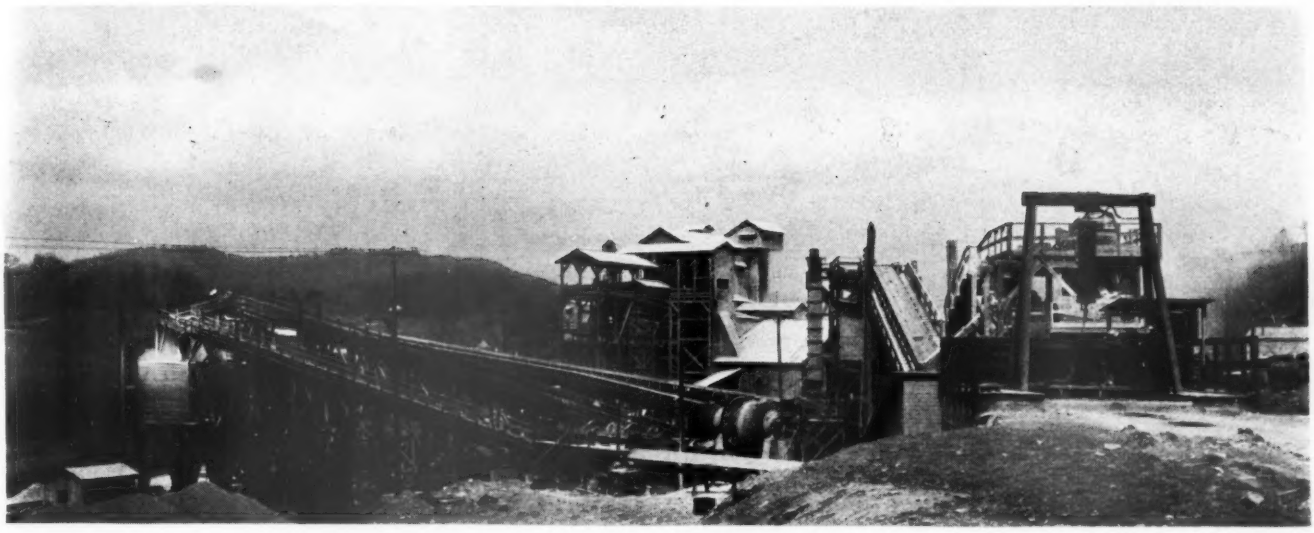
As a laboratory test, a mechanized assembly of the old cross-brick couplet was found to give the most satisfactory results for bond in tension. Another test, developed with the aid of an experienced bricklayer, consisted in prying up bricks, laid in mortar on the top of a wall, with a lever under measured load, thus permitting calculation of the stress at rupture. Analysis of many test results from the two methods showed that the couplet test is the more reliable, and that it responds to the plasticity of the mortar somewhat more favorably than the so-called wall test.

In another paper data were preented by C. W. Muhlenbruch and Ben Marcin, Carnegie Institute, on *Increasing the Reflectivity of Standard Portland Cement Concretes by Additions of Hydrated Lime.* Using a 30 per cent. hydrated-lime addition, reflectivity could be raised 15 percentage points.

An interesting paper presented by S. P. Wing and Arthur Ruettgers covered variations in strength of Portland cements conforming to the same specifications and the relation of such variations to concrete control. The paper deals with an analysis of variations in the 20-day strength properties of 10 low-heat Portland cements purchased for a large dam under the same specifications, and with the effect and practical significance of such variations on the strength uniformity of concrete. Mill strength levels ranged from 2,830 to 5,000 p.s.i. For cement from a single mill, the average coefficient of variation in strength was 13.5 per cent. Among the conclusions is this—that cement strength differences revealed by cement-acceptance tests are of importance in the building of structures for which the concrete must meet a minimum 28-day or other early-strength requirement, but that they are likely to have little bearing on the ultimate strength differences in massive dams or other structures in which the concrete is subject to prolonged hydration and strength development.

There was much interest in each of the technical papers on concrete and concrete aggregates. Douglas McHenry, U. S. Bureau of Reclamation, in a fundamental paper covered the problem of creep in concrete

(*Continued on page* 60)



A view of the General plant with one of the Acme plants in background.

General, Acme Furnish Crushed Stone for West Virginia Reservoir Project

another ON THE SPOT report

THE NEED for concerted effort and the full utilization of all equipment and natural resources in our war effort has brought forth many examples of coöperation among producers and contractors which had no parallel during peace times. One of the most interesting examples is the arrangement under which the General Crushed Stone Company and the Acme Limestone Company are producing about 1,250,000 tons of crushed stone and stone sand for the Blue Stone Reservoir Project of the U. S. Engineers on the New River near Hinton, West Virginia. While not a war project, this flood-control dam will provide a more even flow of water from the New River to power dams on the Kanawha River which supply electricity for the important industries in the Charleston area. Provisions for power production are also being made.

The contract for the production of this material was awarded by the Dravo Corporation, the general contractor, to the General Crushed Stone Company. The nearest suitable deposit, 35 miles from the dam site, is that of the Acme Limestone Company at Snowflake, West Virginia, which has for many years been one of the outstanding crushed-stone operations in the South. In order that this contract could be filled without interference to Acme's usual business and without bringing in any more equipment than was absolutely necessary, the two companies agreed to pool their facilities so that General would provide two-thirds and Acme one-third of the stone required. At the Acme quarry General built a new plant, which was ready for operation late in 1942. Before it began to operate the government decided to slow down the construction of the dam, and as the resulting demand was not sufficient to justify operation of the new plant during the winter, it was decided that Acme should take care of the requirements then existing. In order to protect the work already done and the shops at the dam site the government later decided to continue the construction of the dam up to the 1,390-foot level, leaving completion to the final 1,550-foot level to some future date.

Up to May 1 Acme had delivered about 125,000 tons of rock, or approximately its share of the 375,000 tons needed to build the dam to its temporary level. The new General plant was started up again April 12 to supply the remaining 250,000 tons.

Under the joint arrangement Acme provides the stone for the General plant ready for loading into trucks, taking care of the stripping, drilling, and primary and secondary blasting. General does the loading and hauling for its own plant and has provided the equipment for this purpose. All the repair work is handled by the Acme shops and equipment.

The deposit and the quarrying methods used are alone worthy of a lengthy description but for the purposes of this article they will be treated briefly. The deposit consists of Greenbrier limestone and is worked by open quarrying when producing material for concrete aggregates, railroad ballast, stone sand, etc. The high-calcium stone for chemical and metallurgical uses and agricultural limestone is mined.

The overburden is removed from the deposit hydraulically and enough has been uncovered for about ten years of operation. Both the well-drill and the bench methods of blasting are used on the quarry face, which is 1,200 feet long and has an average height of 165 feet. Bench blasting with wagon drills is employed only at the east end of the quarry. By far the largest tonnage of stone is produced by well-drill blasting. An average shot consists of fifty 6-inch holes spaced 16 feet apart and 30 feet back from the face in a single row and extending only 18 inches below the level of the quarry floor. At the floor level snakeholes, spaced 4 feet apart, are drilled to depths of from 18 to 20 feet. This combination, after con-

By W. E. TRAUFFER

siderable experimentation, was found to be economical and to leave a smooth quarry floor. Du Pont 60 and 75 per cent. Special Gelatins are used for about the bottom half of each well-drill hole and lower-strength dynamite higher up. About 20 feet of clay stemming is used.

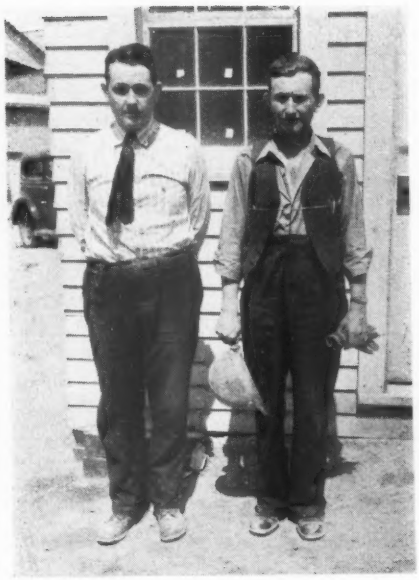
The snakeholes are loaded with Gelex Number 1 in 1¼- by 8-inch cartridges. All the charges in both types of holes are primed throughout their length with reinforced Primacord detonating fuse. A trunk line of plain Primacord connects the entire system. Two electric blasting caps, one at each end of the line and hooked in series, initiate the detonation.

Jackhammers are used for secondary drilling and the shooting is done with du Pont Extra H in 1¼- by 8-inch cartridges.

The stone for the new plant is loaded into a fleet of 6 Mack 10-ton trucks by 2 Marion 392 shovels with 2½-cubic yard dippers. The shovels are powered by Buda Lanova Diesel engines. With the present equipment 46 truckloads, or 460 tons, of stone can be delivered to the plant per hour, the average one-way haul being about 1,000 feet.

At the plant the rock is dumped from the trucks into the Traylor 48- by 60-inch primary jaw crusher which is driven through a flat belt by a 200-horsepower motor. A stone hook over the crusher is operated by an air cylinder.

The minus-8-inch rock from this crusher is carried on a 48-inch by 110-foot inclined belt-conveyor to the 6- by 12-foot Tyler Ty-Rock 2-deck scalping screen. This has W. S. Tyler 6½-inch square-perforated plate on its top deck and 3½-inch wire cloth on its bottom deck.



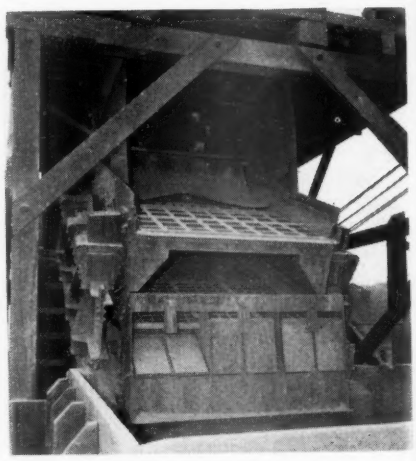
D. C. Hickey, Jr., superintendent for General Crushed Stone, and E. H. Warren, superintendent for Acme Limestone.

The 6½- to 8-inch oversize from the scalping screen drops through a chute into the 20-inch Worthington Superior McCully gyratory secondary crusher. A gate at the scalping screen also makes it possible to divert all, or any part of, the 3- to 6-inch rock to this crusher when desired. The crusher was designed for use in the iron-ore field and has an extra-heavy top shell with an actual feed opening of only 16 inches. It is driven by a 150-horsepower motor through Worthington V-belts.

The minus-2¼-inch product of this crusher is carried on a 24-inch by 80-foot inclined belt-conveyor to a 4- by 12-foot Tyler Ty-Rock 2-deck sizing screen. This has 1¼-inch openings on its top deck and ⅜-, ⅝- and ¾-inch openings on its bottom deck. The material passing over both decks (¾- to 2-inch) is discharged by gravity back on the main conveyor running to the scalping screen.

The ⅝- to ¾-inch rock falling through one section of the bottom deck of this screen can either be returned on the main conveyor or discharged into a Nordberg Symons 30-inch impact crusher. A bucket-elevator discharges the product of this crusher on a 4- by 8-foot Tyler Hummer screen with 4-mesh wire cloth on its single deck. The material over 4 mesh in size is returned to the impact crusher. The minus-4-inch material falling through this screen is discharged on a 20-inch by 45-foot belt-conveyor followed by a 20-inch by 130-foot conveyor to one compartment of the car-loading bin.

One of the two electric-vibrating screens which make stone sand.



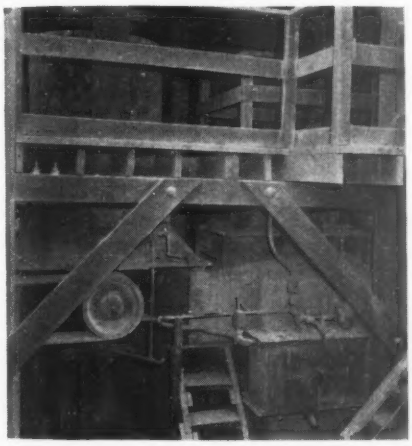
Screen which makes 3- to 6-inch rock and scalps oversize to secondary crusher.

The ⅝-inch-minus material falling through the other two sections of the bottom deck of the 4- by 12-foot screen goes to a Pennsylvania

One of the Diesel-driven shovels loading a truck in the quarry.

Type CF-5-38 reversible Impactor. A duplicate bucket-elevator and Hum-mer screen returns the plus-4-mesh material to the Impactor. The chutes from these two screens are so arranged that, if desired, the oversize of either one of, or both, the screens can be discharged to either one of, or both, the crushers. The minus-4-inch material passing through this screen goes to the same series of conveyors and bin as that from the other crusher. Both the crushers are driven through V-belts by 75-horsepower motors.

A Number 636 Type R Allis-Chalmers gyratory reduction crusher with "Speed-Set" control was installed near the two crushers. The original plan was to use this machine for reduction of the 1- to 2-inch oversize off the top deck of the 4- by 12-foot screen ahead of the two crushers, which is now returned with the ¾- to 1-inch rock off the second deck of the same screen to the main conveyor ahead of the scalping screen. This crusher is connected for use if

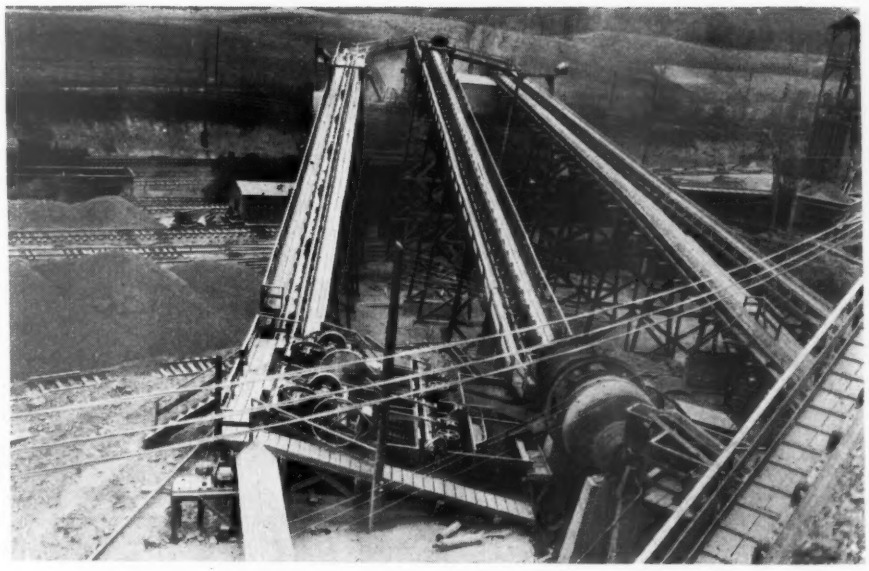


Impact crusher and gyratory crusher used for reduction.

ever a higher percentage of finer sizes of rock is required.

The 3- to 6-inch rock off the bottom deck of the scalping screen is usually carried on a 30-inch by 200-foot belt-conveyor to one compartment of the car-loading bin. All, or any part of, this rock can, if desired, be diverted to the secondary crusher as previously described.

The minus 3-inch rock falling through the bottom deck of the scalping screen usually drops on a 5- by 12-foot Tyler Ty-Rock screen which has a single-deck fitted with 1¾-inch wire cloth. The 1½- to 3-inch rock passing over this deck is usually carried on a 30-inch by 200-foot belt-conveyor to another compartment of the car-loading bin. However, when there is an excess of 3-inch stone, this material can be



Conical scrubbers and rake classifiers with conveyors to car-loading bins.

discharged from the screen by a bucket-elevator to the gyratory secondary crusher.

The minus-1½-inch rock passing through the bottom deck of this screen is carried on a series of two 20-inch by 24-foot belt-conveyors to an 8-foot diameter by 4-foot Hardinge conical scrubber. No ball load is used as sufficient scrubbing action is obtained without it. Attached to the discharge end of this scrubber is a 6- by 6-foot revolving dewatering screen with $\frac{3}{16}$-inch openings. The

Impact crusher which reduces ⅝-inch-minus stone for stone sand.

scrubber is driven through V-belts by a 125-horsepower motor.

The minus-¼-inch sand passing through this screen flows into an 8- by 25-foot Dorr Duplex rake classifier. Its dewatered product is discharged on the 20-inch by 130-foot belt-conveyor already described which carries the dry sand from the Hum-mer screens to a loading-bin compartment. A second classifier installed beside the one mentioned can be used whenever needed.

The 1¼- to 1½-inch rock passing over the revolving screen is carried on a 24-inch by 175-foot belt-conveyor to a 5- by 10-foot Ty-Rock screen over the car-loading bins. The one deck of this screen in use is fitted with 1-inch wire cloth. The ¾- to 1½-inch material passing over this deck goes to one bin compartment and the minus-¾-inch troughs go to another compartment.

The five wooden car-loading bin compartments hold 200 tons each with a live-loading capacity of 100 tons. Cars on a single track below these bins are loaded through rack-and-pinion sliding gates. The 6-inch stone and the stone sand are loaded direct into cars. The former is usually loaded dry but can be rinsed by means of a nozzle if desired. The 3-, 1½-, and ¾-inch sizes are first rinsed over Simplicity 3- by 6-foot

One of three washing screens beneath the car-loading bins.

vibrating screens which are installed under their bins and drop the stone into cars. These screens have 8-mesh cloth on one deck and perforated spray pipes.

This plant is the first ever built by the General Crushed Stone Company for this type of work. It was designed specifically for this job by D. C. Hickey, chief engineer, and E. Z. Cole, superintendent of the company's plant at Rock Hill, Pennsylvania, was in charge of its construction under the direction of A. G. Seitz, vice-president in charge of production. D. C. Hickey, Jr., is plant superintendent.

All the conveyor belting used in this plant was supplied by the Carlyle Rubber Company. The idlers for the 24- and 48-inch conveyors were supplied by the Diamond Iron Works and those for the 30-inch conveyors by the Link-Belt Company. All the conveyors are driven through speed-reducers, some of Link-Belt and some of Falk manufacture. Crocker-Wheeler, General Electric and Westinghouse motors are used. The vibrating screens are driven through V-belts. In order that they may be used later in other plants, all the screens purchased for this plant are double-deck, although only one deck is used in some cases.

Research (*from page 56*)

and the application of his principles to design. He also described numerous laboratory tests which formed the basis and verification of his theory. He developed an equation which defines creep as "a function of stress, age at loading, and elapsed time after loading," which equation combined with superposition principles gives a means for expressing the strain history when the stress history is known.

A simplified test for evaluating effectiveness of concrete mixers was described by Messrs. Wing, Jones and Kennedy of the U. S. Bureau of Reclamation, as based on a study of more than 2,000 analyses of fresh mortar and tests from 220 batches of concrete mixed in 8 different mixers. The authors conclude: "The unit weight test is a simple test which is well adapted for determination of the amount of mixing necessary to produce a desired degree of uniformity. It provides coefficients indicative of the batching and mixing efficiencies and indicates where improvements can be made in the mixing procedures. For a given uniformity and operating at the same percentage of critical speed, concrete mixers of different sizes require mixing periods directly proportional to the squares of their diameters."

In another paper Messrs. Hubbard and Williams concluded on the basis of extensive tests that the abrasion of blast-furnace slag, whether measured by the modified Deval or Los Angeles method, does not predict the strength-producing value of the material when used as concrete aggregate. The characteristics of slag from fifteen sources have been studied together with strength tests of the concrete resulting from their use. The unit weight of the slag does not predict the strength of concrete or the abrasion loss of the slag aggregate. Abrasion tests of slag show a marked similarity between the results of the Los Angeles and Deval methods, although there is a difference in the magnitude of the results.

While not presented in the session on concrete, a paper by C. H. Menzel, Portland Cement Association, covering tests of fire resistance and thermal properties of solid concrete slabs and their significance is of much interest. He describes a large number of tests carried out on 16 solid concrete slabs which carried loads of 400 and 500 p.s.i. during exposure to fire. The test developed important data on the thermal properties of solid concrete made with various aggregates.

The relationships between fire endurance period and the air-dry weight per square foot of the solid concrete slabs is similar to the relationships developed in tests of walls of hollow concrete masonry units where it was found that the fire endurance period increased as an exponential function of the average air-dry weight per square foot of wall assembly.

Comparison of these relationships indicates that, pound for pound, the relatively dense concrete in the solid slabs was from 15 to 30 per cent. less effective in retarding temperature rise on the unexposed face in the case of the two natural aggregates (siliceous and calcareous gravel) than the corresponding dry-tamped concrete in hollow masonry walls. The Haydite concrete was from 10 to 40 per cent. more effective in the solid slabs than in the walls of hollow masonry units. The greater effectiveness of the Haydite concrete in the solid slabs is mainly due to tenaciously-held moisture within the thicker Haydite slabs.

A study of the allowable steel stresses used in conventional design practice and of published data on the general effect of elevated temperatures on the yield strength and elastic properties of carbon steels indicates that 1,000 degrees F. is the critical temperature for carbon-steel reinforcement in flexural concrete members.

Construction (*from page 55*)

vocating that this should be done on a national scale, with subsidies for local communities by the federal government. Other people, equally impressed by the necessity of doing this job on a large scale, believe that it can be done and done more soundly through local initiative and private investment; to this end several states have enacted enabling legislation to encourage private initiative and private investment.

Urban redevelopment would create large-scale projects, including housing, commercial and industrial buildings, and public facilities. Some projects would call for immediate demolition of old buildings and replacement with new ones. Some would combine the modernization of existing buildings, new construction and gradual replacements of old buildings. The urgent necessity for urban redevelopment is based upon the need to restore the balance between central districts and outlying areas, to recreate real-estate values, improve the security underlying mortgages, and improve the financial status of cities.

7. *Public-Works Reserve* — Federal, state, and local governmental agencies customarily responsible for planning and executing public-improvement projects have been obliged, like private investors, to postpone those projects of civilian character which would, under other circumstances, have been carried out this year. Regular improvement projects so postponed during the war period thus became part of the deferred construction market.

These agencies, however, are now engaged in developing long-range programs for projects to take care of the future needs of their respective communities. They have been encouraged to do so by the Federal Works Reserve, a unit of the federal administration set up under the joint auspices of the National Resources Planning Board and the Federal Works Agency, whose field representatives have made contacts with state and local government agencies, helped them to study their financial resources, set up capital budgets and develop long-range programs for future community improvements.

Cement (*from page 43*)

the coöperation of the cement industry." Issuance of a complaint by the commission intervened and the contemplated report was not published.

Under the present system used by the respondents there is much cross-hauling of cement. The system contemplates and results in each corporate respondent waiving his advantage in his natural sales territory in return for reciprocal waiver by the other corporate respondents. It tends toward maintaining a price level sufficiently high to enable the corporate respondents to sell cement outside the territory naturally tributary to their respective mills. There is no way within practicable bounds of determining exactly how much of this occurs and how much of the total sums paid by consumers for cement results from the additional cost of transportation on sales outside the natural territory of the seller. The estimate of the Cement Institute statistician, W. S. Mallory, of such freight losses in two districts for 1933 was $783,124.46.

The commission finds that the discrimination in mill net prices of each respondent seller forms a systematic pattern that is the mathematical counterpart of the delivered-price pattern resulting from the multiple-basing-point delivered-price system, which system is an expression of the effort of each respondent seller to match the delivered prices of other respondent sellers. It would be impossible for the respondents to maintain their multiple-basing-point delivered-price system without automatically creating this systematic pattern of discrimination in mill nets in the sales of each respondent seller. Higher mill nets are always exacted from customers closer freightwise to the seller than from customers at more distant points. It would be impossible for respondent sellers habitually and openly to obtain these widely varying mill nets in the form of f.o.b. mill prices, and any attempt to do so would undoubtedly arouse a storm of protest from purchasers. The evidence shows that the respondents have for many years pursued a course inconsistent with any conclusion other than that they recognized mill nets as being the true prices of and for cement.

The commission ordered that the respondent, The Cement Institute, an unincorporated association, its officers, trustees, agents, representatives, and employees, and the corporate respondents, their respective officers, agents, representatives, and employees, in connection with the offering for sale and distribution of Portland cement in interstate commerce, do forthwith cease and desist from entering into, continuing, coöperating in, or carrying out any planned common course of action, understanding, agreement, combination or conspiracy between and among any two or more of said respondents, or between any one or more of said respondents and others not parties hereto, to do or perform any of the following things:

1. Quoting or selling cement at prices calculated or determined pursuant to or in accordance with the multiple-basing-point delivered-price system; or quoting or selling cement pursuant to or in accordance with any other plan or system which results in identical price quotations or prices for cement at points of quotation or sale or to particular purchasers by respondents using such plan or system, or which prevents purchasers from finding any advantage in price in dealing with one or more of the respondents against any of the other respondents.

2. In connection with or in aid or support of any plan, system, acts, or practices prohibited in paragraph 1 above,

(a) Refusing or declining to quote or sell cement at the location of the producing mill at a price effective at such location.

(b) Refusing or declining, when quoting or selling cement at a price effective at the location of the producing mill, to allow purchasers to provide transportation by any means, at any cost, or to any place they may desire.

(c) Quoting or selling cement at f.o.b. mill prices calculated by deducting actual common-carrier transportation charges from delivered-price quotations or delivered prices which are equivalent to the sum of the base price at, plus common-carrier transportation charges from, any point other than the actual shipping point.

(d) Quoting or selling cement ostensibly at f.o.b. mill prices, but which prices, plus common-carrier transportation charges to purchasers' destinations, are systematically equivalent to identical delivered costs to such purchasers from differently located mills.

(e) Quoting or selling cement at delivered prices calculated as or systematically equivalent to the sum of the base price in effect at, plus common-carrier transportation charges from, any point other than the actual shipping point.

(f) Quoting or selling cement at delivered prices which systematically include a common-carrier transportation factor greater or less than the actual cost of such common-carrier transportation from the point of shipment to destination.

(g) Quoting or selling cement at delivered prices which systematically include a freight factor representing transportation by a common-carrier having higher rates than the means of transportation actually employed.

(h) Quoting or selling cement at destination-cost figures accompanied by a requirement that for invoicing purposes the f.o.b. mill price shall be determined by making specified deductions from said destination cost figures.

(i) Quoting or selling cement to any instrumentality of the federal government in a manner or upon terms which deprive the government of all or any part of the benefits of land-grant or other special common-carrier rates to which it may be lawfully entitled.

(j) Collecting, compiling, circulating, or exchanging information concerning common-carrier transportation charges for cement, used or to be used as a factor in the price of cement, or using, directly or indirectly, any such information so compiled or received as a factor in the price of cement.

(k) Controlling or attempting to control the destination or use of cement after the acquisition of title thereto by the purchaser.

(l) Determining upon any basis for the selection or classification of customers, or using any basis so determined for selecting or classifying customers.

(m) Determining upon the projects or types of projects for which, or the purchasers or classes of purchasers to whom, sales of cement will or will not be made directly by respondents.

(n) Collecting, compiling and circulating, or exchanging statistical data which reveal the individual production, stocks, sales, or shipments of cement of any corporate respondent to other corporate respondents.

(o) Maintaining any form of espionage for the purpose of determining whether or not their customers purchase or deal in imported cement; or discontinuing or threatening to discontinue sales of cement to customers because they purchase or deal in imported cement.

(p) Determining upon any discounts, package charges or refunds thereon, or other terms or conditions of sale, or using any discounts, package charges or refunds thereon, or other terms or conditions of sale so determined.

3. Discriminating in price between or among their respective customers by systematically charging and accepting mill net prices which differ by the amounts necessary to produce delivered costs to purchasers identical with the delivered costs available to such purchasers through purchases from other respondents.

4. Using any means substantially similar to those specifically set out in this order with the purpose or effect of accomplishing any of the things prohibited by this order.

The commission further ordered that the case growing out of the complaint as to the Castalia Portland Cement Company, Pittsburgh, be closed without prejudice to the rights of the commission, should future facts so warrant, to reopen the case and resume trial in accordance with its regular procedure.

President S. W. Storey of the Cement Institute called the order "merely a new attack by government bureaus seeking to bring up questions that have been settled by the Congress and at least once by the Supreme Court."

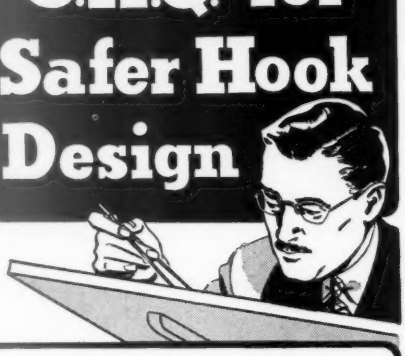
He said the commission "for over a quarter of a century has repeatedly urged that the multiple-basing-point method of marketing should be declared illegal. It has asked the Congress to accept this view. The Congress has consistently refused.

"In 1925 the Supreme Court had before it the legality of the basing-point method in the cement industry. It flatly rejected the view now undertaken to be enforced by the Federal Trade Commission."

The manufacturing companies named in the order are:

Aetna Portland Cement Company, Bay City, Mich.; Alpha Portland Cement Company, Easton, Pa.; Arkansas Portland Cement Company, Denver; Ash Grove Lime and Portland Cement Company, Kansas City, Mo.; Beaver Portland Cement Company, Portland, Ore.; Bessemer Limestone & Cement Company, Youngstown, O.; Calaveras Cement Company, San Francisco; California Portland Cement Company, Los Angeles; Colorado Portland Cement Company, Denver; Consolidated Cement Corporation, Chicago; Coplay Cement Manufacturing Company, Coplay, Pa.; Cumberland Portland Cement Company, Cowan, Tenn.; Dewey Portland Cement Company, Kansas City; Diamond Portland Cement Company, Middle Branch, O.; Edison Cement Corporation, West Orange, N. J.; Federal Portland Cement Company, Inc., Buffalo, N. Y.; Florida Portland Cement Company, Chicago; Georgia Cement & Products Company, Atlanta; Giant Portland Cement Company, Philadelphia; Glens Falls Portland Cement Company, Glens Falls, N. Y.; Great Lakes Portland Cement Corporation, Buffalo, N. Y.; Green Bag Cement Company of Pennsylvania, Pittsburgh; Green Bag Cement Company of West Virginia, Kenova, W. Va.; Hawkeye Portland Cement Company, Des Moines, Ia.; Hercules Cement Corporation, Philadelphia; Hermitage Portland Cement Company, Nashville, Tenn.; Huron Portland Cement Company, Detroit; Idaho Portland Cement Company, Inkom, Idaho; Keystone Portland Cement Company, Philadelphia; Kosmos Portland Cement Company, Kosmosdale, Ky.; Lawrence Portland Cement Company, Siegfried, Pa.; Lehigh Portland Cement Company, Allentown, Pa.; Lone Star Cement Corporation, New York (named in the complaint as International Cement Corporation); Marquette Cement Manufacturing Company, Chicago; Medusa Portland Cement Company, Cleveland, O.; Missouri Portland Cement Company, St. Louis; Monarch Cement Company, Humboldt, Kan.; Monolith Portland Cement Company, Los Angeles; Monolith Portland Midwest Company, Los Angeles; National Cement Company, Birmingham, Ala.; Narazeth Cement Company, Nazareth, Pa.; Nebraska Cement Company, Superior, Neb.; North American Cement Corporation, Albany, N. Y.; Northwestern Portland Cement Company, Seattle, Wash.; Northwestern States Portland Cement Company, Mason City, Ia; Oklahoma Portland Cement Company, Denver, Colo.; Oregon Portland Cement Company, Portland, Ore.; Pacific Portland Cement Company, San Francisco; Peerless Cement Corporation, Detroit; Pennsylvania-Dixie Cement Corporation, New York; Petoskey Portland Cement Company, Petoskey, Mich.; Pittsburgh Plate Glass Company, Pittsburgh; Portland Cement Company of Utah, Salt Lake City; Riverside Cement Company, Los Angeles; Santa Cruz Portland Cement Company, San Francisco; Signal Mountain Portland Cement Company, Chicago; Southern States Portland Cement Company, Rockmart, Ga.; Southwestern Portland Cement Company, El Paso, Tex.; Spokane Portland Cement Company, Spokane, Wash.; Standard Portland Cement Company, Painesville, O.; Superior Cement Corporation, Portsmouth, O.; Superior Portland Cement, Inc., Seattle, Wash.; Three Forks Portland Cement Company, Denver; Trinity Portland Cement Company, Chicago; Union Portland Cement Company, Denver; Universal Atlas Cement Company, Chicago; Valley Forge Cement Company, Catasauqua, Pa.; Volunteer Portland Cement Company, Knoxville, Tenn.; Vulcanite Portland Cement Company, Philadelphia; Wabash Portland Cement Company, Detroit; West Penn Cement Company, Butler, Pa.; Whitehall Cement Manufacturing Company, Philadelphia; Wolverine Portland Cement Company, Coldwater, Mich., and Yosemite Portland Cement Corporation, Merced, Cal.

G.H.Q. for Safer Hook Design

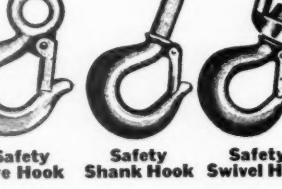


Laughlin offers you the most complete line of hoist hooks on the market, in the most varied and fool-proof choice of safety designs — all drop-forged from selected steel and heat treated. Look for the ⚠, the sign of strength and safety.

Safety Eye Hook | Safety Shank Hook | Safety Swivel Hook

The Safety Hook That's Really Safe

A safety latch (as illustrated) is available on all sizes and styles of Laughlin Hoist Hooks. The properly designed, stout-springed safety feature securely traps the sling — no hazard of accidental slipping or jolting off.



THE STRONGEST OF ALL DESIGNS LAUGHLIN'S CARGO HOOK

Well known to shipping men, this hook is designed for a straight pull. It is as strong as a standard hook twice its weight.

The protective tooth prevents hook catching and tipping the load. Hooked lip gives added security.

Available for 2, 4 and 10 ton loads.

Laughlin's Latest Catalog Shows the Complete Line of Laughlin Wire Rope Fittings. Send for it.

Look for Laughlin Products in Pit and Quarry Handbook

THE THOMAS LAUGHLIN Company PORTLAND, MAINE

PERSONAL MENTION

W. R. Cliffe

W. R. CLIFFE, specialist in the design, construction and operation of lime plants, has resigned as general superintendent of the H. E. Millard Company of Annville, Pennsylvania to devote all of his time as a consultant to the lime industry. His new address is Hersey, Pennsylvania where he is connected with Lime Industry Management & Engineering.

PAUL KIRKBRIDE, who had been assistant plant manager of the Universal Atlas Cement Company plant at Hannibal, Missouri, has been transferred to the company's plant at Independence, Kansas, where he has been made assistant plant manager. Mr. Kirkbride went to Hannibal in 1924 from Northampton, Pennsylvania, to become assistant plant manager and had been in that city since.

STANLEY M. MOOS, who has been eastern manager for Denver Equipment Company for the last two years, has been made general manager of that company's newly organized subsidiary in Mexico, Denver Equipment Company, S. A.

J. H. DUNCAN, formerly of the Spruce Pine, North Carolina, office of the Colonial Mica Corporation, has been made manager of the Asheville, North Carolina, office, which is headquarters for the southern territory covered by the corporation. WILLIAM J. ALEXANDER, chief field engineer, also has been transferred from the Spruce Pine to the Asheville office.

The C. C. Fuller Company, Chiago, has taken over the territory formerly handled by A-W Equipment Company, Chicago, and is now the authorized distributor for the Austin - Western Road Machinery Company.

C. B. COOK has been appointed vice-president in charge of advertising, sales promotion and export sales by the Elwell-Parker Electric Company, Cleveland. A director of the company since 1941, Mr. Cook has been identified with the company for the past 28 years.

EDWARD J. NUNAN, sales engineer of the Buffalo Slag Company, has been elected president of the Erie County Chapter of the New York State Society of Professional Engineers.

EDWARD A. HARRIS, purchasing agent for the Aetna Portland Cement Company, Bay City, Michigan, has been elected president of the manufacturers' division of the Bay City Chamber of Commerce.

J. P. NORRIE was recently appointed managing director of Purdy Mica Mines, Ltd., whose operations are located near Mallawa, Ontario.

M. O. MATTHEWS of Ada, Oklahoma, president of the Oklahoma Portland Cement Company, was re-elected president of the Associated Industries of Oklahoma at the annual convention in Tulsa. Mr. Matthews told the convention "that I have two sons in the service and while I don't particularly want the job, I'll take it to do my part to see that they come back to the same kind of a country they left—where there is equal opportunity for a career which we have enjoyed."

J. C. COSTELLO has been appointed manager of Atlas Powder Company's Giant Division sales offices with headquarters at San Francisco. He succeeds WESTON G. FROME, who has become assistant general manager of the Explosives Department, located at Wilmington, Delaware.

FRED J. KUEHNE, a partner of the Kansas Sand Company of Topeka, and president of Co-Operative International, was one of four national officers who attended a meeting of the Topeka Co-Operative Club in that city on June 10. Mrs. Kuehne, who is a past international president of the Co-Operettes, the Woman's auxilliary of the Co-Ops also attended the meeting and made a talk. Mr. Kuehne was named to the international presidency at the annual convention of the organization in Chicago last year.

HUCH A. WALLACE has been appointed district engineer at Dallas by the Asphalt Institute. He will have charge of the states of Texas, Oklahoma and Arkansas.

HOWARD L. HILL has been appointed eastern representative of the American Pulverizer Company of St. Louis. His office is at 101 Park Avenue, New York City.

A. T. Huizinga

A. T. HUIZINGA has resigned as assistant treasurer of Montgomery Ward & Company to become treasurer of the National Supply Company at Pittsburgh.

Following his association with a number of Chicago banks from 1920 to 1932 Mr. Huizinga joined Montgomery Ward in 1932 and was elected assistant treasurer in 1934. He has been active in civic affairs in Chicago, being a divisional chairman of the Community Fund for many years, a member of the Board of Managers of the Y.M.C.A. of Chicago, and an officer of several other philanthropic organizations.

J. H. REICHENBACH, formerly manufacturing research engineer with the Nazareth Portland Cement Company, is now on the staff of the War Research Division of Columbia University.

FREDERIC I. LACKENS, advertising manager of The Hays Corporation, Michigan City, Indiana, was elected president of the National Industrial Advertisers Association, Inc. at its annual election of officers held in conjunction with the central regional war-time conference at the Hotel Statler, Cleveland, on June 25.

CHARLES T. TREASTER, formerly with the Universal Atlas Cement Company plant at Hannibal, Missouri, has been promoted to first lieutenant in the U. S. Army. He is Q. M. C. officer in charge of the military-personnel branch of the New Cumberland Army Forces Service Depot at New Cumberland, Pennsylvania. He attended officers'-training school at Camp Lee, Virginia, and was commissioned October 16, 1942, at which time he was transferred to New Cumberland.

W. F. DASHIELL, a member of the Boston Woven Hose & Rubber Company sales organization for many years, and who for more than 15 years has represented them with headquarters at Richmond, Virginia, became southern district sales manager on August 1. He will continue to be located for the present at Richmond.

CHARLES V. HARRIS has been made superintendent of the phosphate-flotation plant of International Minerals & Chemical Corporation in Florida.

Amsco Welded Crusher Mantles
Help Relieve War Time Scarcity

From an Eastern welding equipment distributor comes the following report:

Worn manganese steel crusher mantles at a Virginia crushing plant were rehabilitated by Amsco conservation welding. One-inch diameter Amsco nickel-manganese steel filler bars were swedged by hand, after heating to a red heat, to match the contour of the mantle and then were tacked on two inches apart, using 3/16" and 1/4" Amsco nickel-manganese steel electrodes. The space between the applicator bars was then partly built up with the same rod. All the welds were peened vigorously.

•

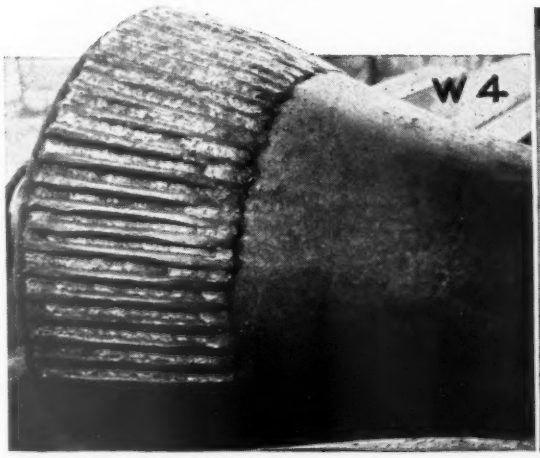
W4—Crusher mantle, 128" at large end, built up with Amsco Nickel-Manganese Steel Electrodes and Amsco Filler Bars.

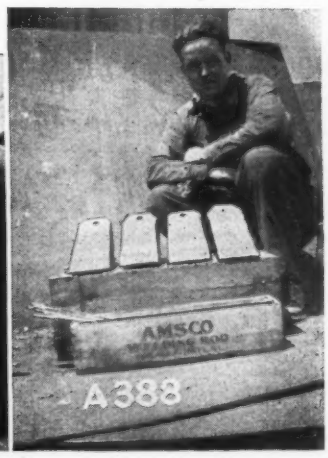
A388—Dull, inefficient dipper teeth made sharp at small cost with Amsco Repointer Bars and a little Amsco Nickel-Manganese Steel Welding Rod.

The user asserts that the rebuilt mantles lasted as long as new ones, which is credited to the formula of the welding materials and work-hardening from thorough peening. This is another case where build-up welding has restored essential parts to "good-as-new" condition while saving new metal badly needed elsewhere. This work would be justified under war-time conditions even if more expensive than new castings, but usually the cost of reclamation is less.

Amsco nickel-manganese steel welding rod, filler bars and shapes are also conserving metal in reclaiming such castings as crusher jaws and concaves, dipper lips and teeth, and other ferrous parts which are subjected to severe abrasion.

Write for Bulletin 941-W, describing the complete line of Amsco Welding Products.





Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois

AMERICAN Brake Shoe COMPANY

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

A. C. Lindblom and William Woodfill have started the manufacture of concrete burial vaults at Henry, Illinois. They have a ten-county franchise granted them by the Eagle Burial Vault Company of Detroit.

C. E. Blee, formerly project manager for the T.V.A. Fontana Dam project, was recently appointed chief engineer of the T.V.A. He succeeded Colonel T. B. Parker who has been appointed head of the civil and sanitary engineering department of the Massachusetts Institute of Technology.

Frank J. Belina has accepted a position in the quartz and mica division of the Board of Economic Warfare in Brazil. He formerly was with the Bureau of Mines.

OBITUARY

Jesse L. Alley, 67, owner of the Acme Sand & Gravel Company of Indianapolis, at the time of his retirement several years ago, died June 20 at Tavernier, Florida. He was a native of Louisville, Kentucky, having gone to Indianapolis when he was three years old and having lived there the remainder of his life. He became one of the business leaders of that city and was active in fraternal and civic organizations. He had been spending his winters since 1935 in Florida.

James K. Summers, 63, who retired a year ago after serving many years as district manager of the Vulcanite Portland Cement Company, New York, died in June of a heart ailment at his home in the Bronx.

Roy J. Becker, 55, for 20 years a salesman for the Nebraska Culvert & Pipe Company, died suddenly at his home in Lincoln, Nebraska, recently.

Harry Scharf, 26, an employee of the Certain-teed gypsum plant at Fort Dodge, Iowa, was severely burned in an accident at the plant on June 10. He has been employed at the plant two years.

James H. Bartley, 79, who had been connected with the Lehigh Portland Cement Company at Staunton, Virginia, for many years, died at Birmingham, Alabama, recently.

12 AKINS CLASSIFIERS in the World's Largest MAGNESIUM PLANT

This is one of twelve 54 in. Simplex Submerged Spiral AKINS Classifiers installed by Basic Magnesium at Las Vegas, Nevada.

These machines were specially designed for dewatering magnesite concentrates and tailings. Their selection for this great reduction plant is another example of the adaptability and widening acceptance of AKINS Classifiers. . . . Write for Bulletin 24 HA — a conservative presentation of data on classification, washing and dewatering.

Lowden Dryers; Skinner Multiple Hearth Roasters; Ball, Rod & Tube Mills; Diaphragm Pumps; Smelting Equipment.

COLORADO IRON WORKS CO.

Main Office, DENVER (2), COLORADO, U. S. A.

Canadian Locomotive Co., Ltd., Kingston, Ont., Can. - Clyde Eng'ring Co., Ltd., Granville, N.S.W.
Head, Wrightson & Co., (So. Africa) Ltd., Johannesburg.
Vancouver Iron Wks., Ltd., Vancouver, B.C., Can. - Head, Wrightson & Co., Stockton on Tees, Eng.

TRAFFIC News Digest

I. C. C. Reports

Ground Barite.—Docket No. 28926. Thompson, Weiman & Company, Inc., *v.* Alabama Great Southern Railroad Company *et al.*, embracing No. 28935, Point Barite Company *v.* A.T.&S.F. *et al.* By Examiner Claude A. Rice. Rates, generally column 20, minimum 50,000 pounds, ground barite from Cartersville, Georgia, and Mineral Point, Missouri, to points in Louisiana, Texas, and Oklahoma, unreasonable now and for the future to the extent that they exceed or may exceed the rates based on column 14, minimum 80,000 pounds, and unduly prejudicial to the extent that they bear a higher percentage relation to first class than the rates from origins in Arkansas to the same points.

Truck Reports

Gettysburg, Pennsylvania. — MC 104242. John S. Teeter & Sons, Inc., common carrier. Certificate proposed on a finding that the applicant's operations were those of a common carrier. Crushed stone and crushed-stone products in dump trucks from Bittinger, Pennsylvania,

and points within a radius of two miles of Gettysburg, Adams County, Pennsylvania, on the one hand, to points in Frederick, Carroll, and Washington Counties, Maryland, on the other, over irregular routes with return transportation for compensation only on rejected shipments.

Lance Creek, Wyoming.—MC 100684, Sub.1. Clarence E. and George E. Mangus, extension. Permit recommended. Cement, plaster, and building materials from Manville to Lance Creek, Wyoming.

Nipton, California.—MC 104241. Charles G. Craig, contract carrier. Denial of permit proposed. Ore and ore concentrates, metallic and nonmetallic, in bulk between points in California and Nebraska, within 50 miles of Nipton, California, including Nipton, over irregular routes.

General Order O.D.T. 6-A

ODT 6-A, which became effective June 28 and deals with the conservation of motor equipment, placed a time limit upon all orders for collection and delivery at 3 p.m. According to instructions contained therein all orders for freight pickup or requests for delivery must be received by the truck operator before 3 o'clock in the afternoon, to be handled in the same day.

Truck Lease for Return Loads

Amendment Number 4 to General Order ODT 17 sets up the procedure to be used by truck operators in leasing their vehicles to one another for return loads. This procedure, according to ODT, might be used by private and contract motor carriers without violation of commission regulations. The main feature of the procedure is a trip lease form which is filled in by the lessor and lessee, a copy being sent to the ODT, which says that the procedure provides not only for the details of the leasing and responsibilities, but also for the use of the vehicle's driver and helper without the necessity of transferring the two men to the lessee's payroll. The lessee of the truck must have complete control of the vehicle and must assume full responsibility to the public, the shipper, and the consignee. In addition, the truck while leased must display on both sides the name and address of the lessee, preceded by the words, "Operated by," and if the carrier is a certified or licensed carrier, the certificate or permit number must also be displayed on both sides.

Central Freight Association

Docket 73695 (Shipper's proposal).—Sand, all kinds, and gravel, in open-top cars, carload, minimum weight 90 per cent. of the marked capacity of the car, except that when the car is loaded to its full visible or cubical capacity, the actual weight will apply. Establish a rate of 99 cents per net ton from Navarre, Ohio, to Lordstown, Ohio, *via* W. & L. E., Kent, Ohio, B. & O., or Canton, Ohio, P.R.R.

Docket 73705 (Shipper's proposal).—Clay, crude, common or fire. Carload. Minimum weight 90 per cent. of the marked capacity of the car, except that when the car is loaded to its full cubical or visible capacity, the actual weight will apply. Establish a rate of $1.06 per net ton from Malvern to Uhrichsville, Ohio. *Via* P.R.R. Subject to Ex Parte 148 increase.

Docket 73708 (Shippers' proposal).—Dolomite, roasted, refractory dolomite, in granular form, treated or untreated, clinkered, or burned to a dead state. Carload. Minimum weight 90 per cent. of the marked capacity of the car except that when the car is loaded to its full cubical or visible capacity, the actual weight will apply. Establish a rate $3.45 per net ton from Durbin, Ohio, to Keokuk, Iowa.

Docket 73728 (Shipper's proposal).—(Cancels W. D. A. 73560).—Lime, common, hydrated, quick or

"Specify CONTINENTAL"

BELT CONVEYOR IDLERS

Alert operators are reducing their bulk material handling costs by installing Continental Belt Conveyors. Continental Idlers have what it takes—they are designed and built to do a real job. They will do your job better and cost no more than ordinary idlers. Crushed stone, cement, slag, sand, gravel and similar products are being handled daily for a few cents a ton via Continental Conveyors.

Continental Belt Conveyor Idlers are made in a wide range of types and sizes for all kinds of service, so if you contemplate a new conveyor installation or the replacement of idlers on old conveyors, be sure to thoroughly investigate Continental Idlers before you write your specifications.

Write today **for a copy of Bulletin ID-103 so you can better judge for yourself the superior features of this Precision Built, Streamlined, Efficient CONTINENTAL CONVEYOR IDLER.**

INDUSTRIAL DIVISION

CONTINENTAL GIN COMPANY

BIRMINGHAM, ALA.

ATLANTA, GA. DALLAS, TEX. MEMPHIS, TENN.

slaked. Carload. Establish a rate of 26 cents minimum weight 30,000 pounds, 21 cents minimum weight 50,000 pounds, from Mosher and Ste. Genevieve, Missouri, to East Jordan, Michigan. Establish a rate of 25 cents minimum weight 30,000 pounds, 20 cents minimum weight 50,000 pounds from Marblehead and Quincy, Illinois, to same destination.

Docket 73714 (Shipper's proposal).—Cement, natural, hydraulic or Portland, in bulk, in box cars, carload, minimum weight 100,000 pounds. Establish a rate of 58 cents from Alpena, Michigan, to Benton City, Hanford, and Kennewick, Washington.

Docket 73741 (Shippers' proposal).—Limestone, ground or pulverized. Carload. Minimum weight 60,000 pounds. Establish a rate of $1.93 from Buffalo, New York, to New Castle, Pennsylvania; $2.37 to Curry, Pennsylvania; $2.48 to Mifflen, Pennsylvania; $2.70 to Annville, Carlisle, Lancaster, and York, Pennsylvania; $2.81 to Chambersburg, Collegeville and Quarryville, Pennsylvania. All rates are quoted in cents per net ton.

Docket 73744 (Carrier's proposal).—Crushed stone, in open-top cars. Carload. Minimum weight 90 per cent. of the marked capacity of the car except that when the car is loaded to its full cubical or visible capacity, the actual weight will apply. Establish a rate of $1.05 per net ton from Melvin, Ohio, to Osborn and Wright, Ohio.

Docket 73754 (Carrier's proposal).—Lime. Cancel proportional rates on lime published in Items 500 and 505 of C. F. A. L. Tariff 607, from Carey, Clay Center, Durbin, Gibsonburg, McVitty's, Painesville and other producing points to Virginia cities. Account obsolete.

Docket 73774 (Carrier's proposal).—Sand. Cancel all rates published on sand, as described and applying in connection with Items 6060 to 6065, inclusive, C. F. A. L. Tariff 237-0, from Sandy Hook, Indiana, to destinations in Illinois, Indiana, Kentucky, and Missouri, account obsolete. Classification basis to apply in place thereof.

Docket 73849 (Shipper's proposal).—Stone, crushed, and crushed stone screenings. Carload. In bulk in open-top cars. Establish a rate of 88 cents per net ton from Ridgeville, Indiana to Coldwater, Ohio.

Docket 73851 (Carrier's proposal).—Stone, crushed, in bulk in open-top cars. Carload. Establish a rate of $1.38 per net ton from Speed, Indiana, to Beman, Illinois.

GIVING VICTORY A LIFT

ON highways leading to the far-flung battlefields of the world, Cargo Bodies built by the Hercules Steel Products Company are carrying vital materials of war in unbroken lines to our fighting men and their allies.

Hercules Dump Cargo Bodies, too, are giving dependable service in many camps and on many fronts, both at home and abroad.

With so large a proportion of our capacity occupied by war production, it's only natural that our distributors' stocks of Hercules Dump Bodies should be low. However, when you need new equipment for any essential project or a war contract, the Hercules distributor can take care of you, and the same Hercules representative will keep your present Hercules Hydraulic Hoists and Bodies operating at greatest efficiency, if you'll call on him when you need service.

REMEMBER THESE FEATURES OF SPEEDRAULIC HERCULES HOISTS

- Exclusive Center-Lift Action
- Double Bridge-type Lift Arms
- Balanced Piston Valve, with Finger Tip Control
- 6", 7", 8" and 10" Hoists

HERCULES STEEL PRODUCTS COMPANY
GALION, OHIO

Legal Decisions

By LEO T. PARKER

Unemployment Law Not Effective

Recently many employees have quit their regular jobs hoping to obtain employment in defense work at higher wages. Many of these employees have obtained benefits or payments from the state unemployment compensation fund while seeking other jobs. A higher court recently held these employees not entitled to unemployment compensation payments.

For example, in *Grant Company v. Board of Review,* 29 Atl. (2d) 858, it was shown that a workman quit his regular employment and sought a job in a defense factory at higher wages. He applied for unemployment compensation. The question presented the court was: May a worker resign or quit a position that does not, and by the nature

of the industry of which it is a part can not be made to, carry a wage equal to that paid in a war plant, remain voluntarily and indefinitely idle while he seeks the more highly paid employment, and meanwhile obtain unemployment benefits?

The higher court said:

"The answer to that question must, we think, be in the negative. . . . The refusal of the applicant to resume his employment upon the ground that he wanted a better-paying job was the equivalent of surrendering an existing job and purposely remaining idle."

Failure to Furnish Safe Working Tools

Various higher courts have held that it is the duty of all employers to furnish a reasonably safe place in which employees are to work, and also reasonably safe tools and appliances with which to perform the work. For example, in *Luper Company v. Campbell,* 133 Pac. (2d) 197, it was disclosed that a truck driver was seriously injured when he attempted to unload a 1,200-pound load from the truck at his employer's place of business. The employee sued his employer to recover damages for the injury. During the trial testimony was given that when he started to unload the load it slipped because there was no hoist to use. He was caught under the heavy load and broke his left leg. In holding the employer liable for $1,500, the court said:

"We are of the opinion and hold that the gist of the question of fact submitted to the jury was whether, under all the facts and circumstances, the failure to afford rollers, trucks, dollies or a hoist or other appropriate machinery necessary to a proper unloading of the heavy belts, was negligence."

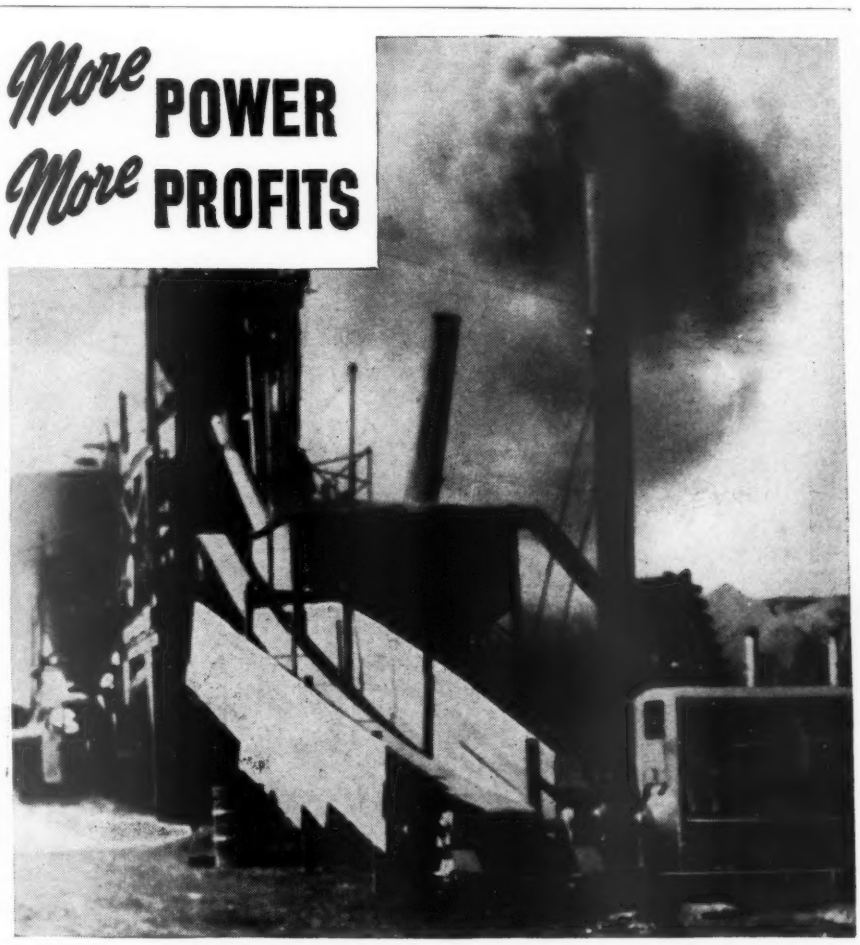
Compensating Illness

Considerable discussion has arisen from time to time whether an employee, who is caused to be sick by impure water, is entitled to recover compensation under workmen's compensation acts. Even in cases where the statutes and facts are similar courts have disagreed, and it can not be said that any clear trend of authority exists. It has been generally held, however, that the mere contraction of a disease by an employee while employed does not entitle him to compensation under any act. Some typhoid-fever cases which decide this are *Finlay v. Guardians of Tullamore Union,* 48 Ir. Law Times, 110; *Gendron v. Brown Corporation,* 62 Que. Sup. 450; *Hoffman v. Consumer's Water Company,* 1940, 61 Idaho 226, 99 P. (2d) 919.

It has also generally been held that where the disease has an accidental clause, apart from the mere infection, it is compensable: *Bobertz v. Hillside Township,* 1939, 9 A. (2d) 689, 17 N. J. Misc., 396; Id., 1940, 125 N.J.L. 321, 15 A. (2d) 796.

Courts generally seem to have adopted the rule that whether or not a disease is compensable depends upon its causation, but there is a wide divergence of opinion as to what causation is considered accidental and what is not.

For illustration, in *Wilson,* 28 Atl. (2d) 568, it was shown that an employee contracted fever from drinking water. The legal question arose whether the employee's employer was liable in damages, or whether the employee was entitled to recover compensation under the state's workmen's compensation laws. The higher court held that the sickness was legally an "accidental" injury and that the employee was entitled to recover compensation under the state's workmen's compensation laws.



For SAND and GRAVEL PLANTS

On the basis of superior performance, economy and dependability, Murphy Diesels have won their reputation for More Power, More Profits. Rugged, compact, lightweight, full-rated horsepower! ENGINE sizes: 90 to 215 HP; GENERATOR sizes: 60 to 115 KW., AC or DC.

★

Write for complete information.

BUY U. S. WAR BONDS

MURPHY DIESEL
Reg. U.S. Pat. Off.

MURPHY DIESEL COMPANY
5307 W. Burnham St., Milwaukee, Wis.

The court said:

"It is not necessary in order to decide this to base it upon the negligence of the employer. It is true that employers who undertake to furnish water for employees are bound to take reasonable precautions to see that such water is free from germs and dangerous impurities."

Implied Warranty

Various higher courts have held that a seller is bound to two principal obligations, that of delivering and that of warranting the thing which he sells. If the thing sold is absolutely useless, or its use is so imperfect that it would not have been bought by the buyer, it follows that the seller has not complied with an implied warranty. This is so because there is an implied warranty in every sale. The seller always guarantees the purchaser against the known and hidden defect of the thing sold.

Moreover, although a contract of sale clearly specifies that equipment or products are sold "as is," the seller still may be liable on an implied guarantee. So held a higher court in Maddox v. Katz, 8 So. (2d) 749.

In this case a seller sold products under a written contract of sale which provided that they were being sold "as is." Later the purchaser discovered that the quality of the products was not as good as he had believed when he made the contract of purchase. He sued the seller, and the court held:

"The clause 'as is,' when employed in a contract of sale, does not relieve the vendor of all warranty."

Questions and Answers

[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—ED.]

Legal Editor: Recently we took a lien but the sheriff failed to properly attend to his duties and we were deprived of a substantial sum of money. Can we hold the sheriff responsible?—R. T. C.

Answer: Public officials are *personally liable* for losses resulting from their failure to abide by valid laws. This point was discussed in the leading case of Bogue-Chitto Gravel Company v. Parish Lafourche, 122 So. 505. The facts of this case are that a state law provides that any party furnishing material for the repair or construction of any public building or road may file with the recorder of mortgages, in the county where the work is done, a sworn statement of the amount due him "and any payments made thereafter by said authority (official) without deducting the amount of the claims so served shall be at his own risk."

A sand-and-gravel company furnished gravel to a contractor for the construction of a county highway. The gravel company filed with the county recorder a sworn statement of the amount due from the contractor for gravel. Subsequently a county official paid out all the money due the contractor to various creditors. The gravel company sued the official *personally* to recover the amount due for the gravel. Although the lower court held the official not personally liable, the higher court reversed this verdict, saying:

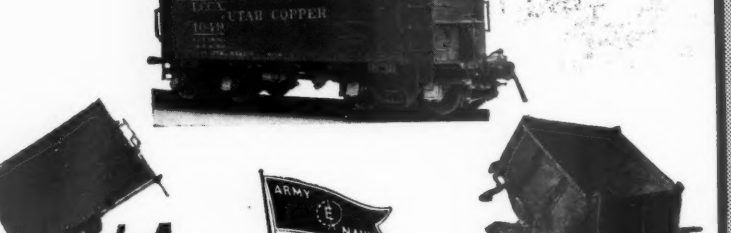
"We think that the word 'risk' used in the act was sufficient to fix the responsibility of the authority making the payments in disobedience to the requirements of that statute . . . it is further ordered and decreed that said Bogue-Chitto Gravel Company have judgment against defendant (official) in the sum of $304.12, with 5 per cent. per annum interest."

Legal Editor: Under what circumstances can a nearby property owner stop operation of a plant because of noise, dust, etc.—W. M. T.

Answer: No lawful business can

For every haulage job in open pit or underground, PSC Cars deliver on schedule!

Ruggedly designed and built to meet the gruelling demands of 24-hours-a-day war time service. Through every shift they stay on the job! Get the facts in Bulletin No. 71.



"DESIGNERS AND BUILDERS OF RAILWAY CARS SINCE 1898"

PRESSED STEEL CAR COMPANY, INC.
INDUSTRIAL DIVISION
PITTSBURGH, PA.

be conducted in such a manner that it will cause substantial injury to the comfort, health, or property of others. Where it clearly appears that such a business can not be conducted in any manner, at the place where situated, without constituting a substantial injury to adjoining property owners, the court may grant an injunction absolutely prohibiting the operation of such business.

For illustration, in Muskegon Block Company v. Bousma, 225 N. W. 611, it was disclosed that a concrete-block manufacturer purchased lots in a subdivision which was restricted to residents. However, by mistake the deeds of these lots did not contain the usual restrictions. Certain property owners offered a large amount of money to the block manufacturer if he would not build his plant on the lots. However, he refused the offer. Later the adjoining property owners instituted legal proceedings to stop operation of the plant on the contention that the noise and dirt created thereby resulted in its being a legal nuisance. Since the plant was built adjoining residences, the court granted an injunction against its operation, sayng:

"Restrictions which are not a matter of record and of which a party has neither actual nor constructive notice can not be enforced against such party. . . . We are satisfied by the proof that, before he signed this contract to purchase, he (block manufacturer) knew that it was claimed that the lots in this block were to be used for residential purposes exclusively, and that those owning the property were objecting to his carrying on his manufacturing business on these lots. . . . He must have known that there were no other industrial plants in this neighborhood. . . . After a careful consideration of this record, we are of the opinion that these plaintiffs are entitled to a decree enjoining the defendant from carrying on the business of manufacturing cement blocks on the lots."

Obviously, therefore, the court considered the operation of this plant a permanent nuisance. This is so because the plant was located adjoining private residences, and the normal operation of the plant could not be varied or changed to eliminate the nuisance.

Also, see City of Bethlehem v. Drucken Monument Company, 25 Atl. (2d) 190, reported April, 1942. In this case the higher court granted a permanent injunction against the operation of a stone-cutting and monument business. The business was located in a thickly-populated residential district within two blocks of the city hall.

An Important Message to
Technical Men

The war has carried the manufacturing age to a new peak! Production demands have created technical problems the like of which the world has never seen before! The services of engineers are at a premium. Especially the services of one particular class—executive engineers—*engineers with business training;* engineers who can "run the show."

In these critical times, the nation needs engineers of executive ability *now, today*—not five, or ten years from now! The shortage of such men is acute—even more acute than that of skilled production workers. And company heads, aware of this situation, are offering high rewards to engineers who have the necessary training in industrial management.

Golden Opportunity for Engineers

In this new era, the engineer with vision and foresight has a golden opportunity. He will realize that out of today's tremendous production battles will emerge technical men who not only will play a major role in winning the war, but who also will be firmly entrenched in key executive positions when peace comes.

However, before the engineer can take over executive responsibilities, he must acquire knowledge of the other divisions of business—of marketing, accounting and finance. He has of necessity a vast amount of technical training and experience. But in order to grasp the opportunities that present themselves today—to assume leadership on the production front—he must *also* have an understanding of practical business principles and methods.

The Alexander Hamilton Institute's intensive executive training can give you this essential business training to supplement your technical skill.

FREE help for engineers

Ever since the war began, there has been an unusually heavy demand on the part of our technically-trained subscribers for the Institute's special guide on "How to Prepare an Engineering Report". Extra copies of this practical, helpful 72-page Guide are now available and, for a limited time only, will be sent free to all technical men who use the coupon at the right.

134,000 men on the operating side of business have enrolled for this training. More than 37,500 are technical men—engineers, chemists, metallurgists—many of whom are today heads of our huge war industries.

This training appeals to engineers because it gives them access to the thinking and experience of the country's great business minds. It is especially valuable to such men because it is basic, not specialized—broad in scope, providing a thorough groundwork in the fundamentals underlying *all* business. It covers the principles that every top executive must understand. It applies to all types of industrial organizations, because all types of organizations are based on these same fundamentals.

Business and Industrial Leaders Contribute

The Institute's training plan has the endorsement of leading industrialists and business men. And it is only because these high-ranking executives recognize its value and give their cooperation that such a plan is possible. Among those who contribute to the Course are such men as Frederick W. Pickard, Vice President and Director, E. I. DuPont de Nemours & Co.; Thomas J. Watson, President, International Business Machines Corp.; James D. Mooney, President, General Motors Overseas Corp.; Clifton Slusser, Vice President, Goodyear Tire and Rubber Co. and Colby M. Chester, Chairman of the Board, General Foods Corp.

Send for "FORGING AHEAD IN BUSINESS"

The facts about the Institute's plan and what it can do for you are printed in the 64-page book, "Forging Ahead in Business". This book in its own right is well worth your reading. It might almost be called a handbook of business training. It is a book you will be glad to have in your library, and it will be sent to you without cost. Simply fill in and mail the attached coupon *today*.

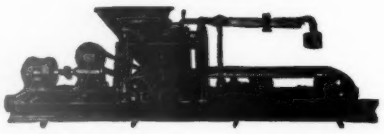
Alexander Hamilton Institute
Dept. 58 73 West 23rd Street, New York, N. Y.
In Canada, 54 Wellington St., West, Toronto Ont.
Please mail me a copy of the 64-page book—"FORGING AHEAD IN BUSINESS" and also a copy of "HOW TO PREPARE AN ENGINEERING REPORT," both without cost.

Name.....
Business Address.....
.....
Position.....
Home Address.....

Manchester Public Library 115 South Avenue

A Profit Pointer
for
Feeding by Weight

SCHAFFER
POIDOMETER



Why use slow, variable and wasteful methods of feeding and proportioning, when you can modernize your weighing system with the Schaffer Poidometer.

This machine insures larger output of a uniform product, at a marked saving in cost. Furthermore, it is so finely designed and built that it can stand hard, continuous service—a major factor in the war program.

Our Catalog No. 5 supplies full details.

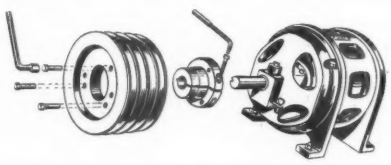
SCHAFFER POIDOMETER CO.
2828 Smallman St. Pittsburgh, Pa.

NEW MACHINERY and SUPPLIES

• V-Belt Sheave

The new Pyott QD (Quick Detachable) sheave for multiple V-belt drives offers important advantages to both the manufacturer and user of machinery.

The ease, speed and safety with which the Pyott QD sheave is attached to or removed from the shaft is its outstanding feature. A socket wrench is the only tool needed for either job. The accompanying illustration shows the simple steps involved in attaching sheave to shaft. First step is slipping the tapered, split hub on the shaft in line with the keyway. Then the headless cap screw shown is tightened down with an inserted key, clamping the hub firmly on the shaft and producing a virtual press fit, even on undersized or oversized shafts. The next step is attachment of the QD sheave on the tapered hub. Actual tightening of the sheave on the hub is accomplished by inserting the pull-up bolts shown in the illustration and tightening them evenly with a socket wrench. These bolts protrude through the sheave and engage with threaded holes in the hub to form an immovable union. Removal of the sheave from the hub is equally simple.



Method of mounting the detachable V-belt sheave.

Pyott QD sheaves are available in standardized sizes which, in spite of the important advantages they offer, are priced as low as regular standard sheaves. Full information is available in the new Pyott QD Sheave bulletin which may be obtained on requests addressed to the Pyott Foundry & Machine Company, Chicago.

• Cable Fitting

Garlinghouse Brothers, Los Angeles, makers of gravel plants, conveyors, elevators and related equipment, are just placing their latest product, the Garbro Shimble, on the market.

The device shown in the accompanying illustrations, is used as a substitute for shackles, thimbles and sockets on wire-rope applications. It is being manufactured in all rope sizes to fit and support the cable. The Shimbles are forged from structural-steel bars permitting welding to other attachments or bending of the side plates to fit special conditions.

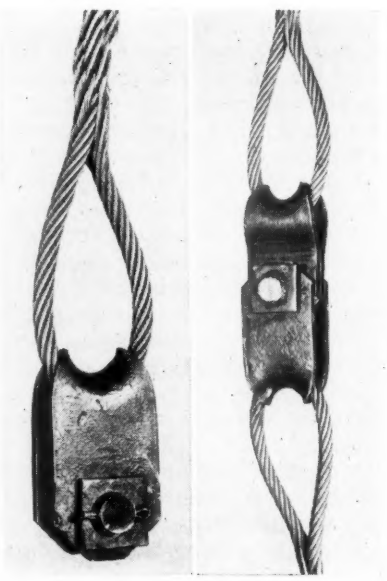


Illustration two applications of the "shimble."

One of the illustrations shows two of the units bolted together to the boom-topping hog cable on a crane. Another useful application of the unit is as a tractor hitch.

The name "shimble" was evolved from the words "SHackle and thIMBLE, and patents are pending on the device and its trade name.

• Intercommunicator

Illustrated is a master station and substation in the Talk-A-Phone Manufacturing Company's new line of inter-communication equipment. This system was developed by the Talk-A-Phone Laboratories in answer to the many requests

Record Tonnages in Screening Rock, Gravel & Ores Throughout the World

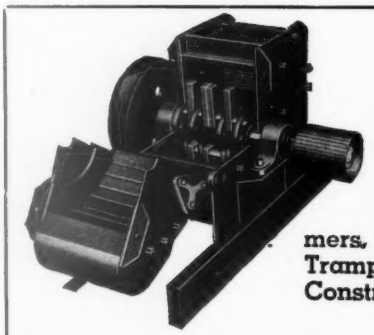
TY-ROCK

SCREEN

Full Floating Circle-Throw Action for Coarse and Medium Sizes

Write for Catalog No. 65

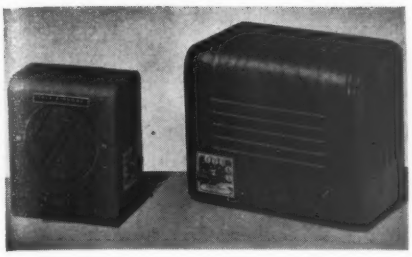
THE W. S. TYLER COMPANY
CLEVELAND, OHIO



LET NEW HOLLAND HAMMER CRUSHERS INCREASE YOUR 1943 PRODUCTION ON FINER AGGREGATES AS WELL AS AGRICULTURAL LIMESTONE AND LOWER YOUR OPERATING COSTS. Features include Self Aligning Ball or Roller Bearings, Adjustable Hammers, Adjustable Breaker Plate, new design Tramp Iron Pocket and Welded Plate Steel Construction.

Write for Literature

NEW HOLLAND NH MACHINE CO.
NEW HOLLAND, PENNSYLVANIA



New intercommunication equipment.

by industry for a low-priced system available for immediate delivery. This system is known as Model LP-77.

The LP-77 utilizes in any combination up to ten, both master stations and a new "selector type" sub-station. Now, in one system, Master Stations may carry on a completely private conversation between each other without interruption or eavesdropping by the remote stations, and, in addition, may communicate with the different sub-stations at will. Any master station may also have a private sub-station with which no other master station can communicate or listen in on.

With the new innovation of "selector type" sub-stations, these outlying stations can now select the master station to which they wish to speak and originate the call. Thus a completely flexible inter-plant communication system may be had with instant contact to all vital points without the use of a central switchboard operator.

Master Stations can call one another regardless of whether the station being called has power on or not. Systems may be built up progressively beginning with two units to any amount of stations desired. Stations can be placed at any distance up to 2000 feet from each other. Operation on the system is 110 volts, a.c.-d.c.

Trade Literature

Grizzly Brake Lining. 44 pages. Grizzly Manufacturing Company, Paulding, Ohio.

Buckeye Clippers. 24 pages. Buckeye Traction Ditcher Company, Findlay, Ohio.

Ideas to Help You Keep Your Present Excavators Working and Doing More to Win the War. 32 pages. Bucyrus-Erie Company. South Milwaukee, Wisconsin.

Electric Vibrating Equipment. 176 pages. (Catalog 750). Jeffrey Manufacturing Company, Columbus, Ohio.

Ruggles-Coles Dryers. 4 pages. Hardinge Company, Inc., York, Pennsylvania.

Move More Material With the Drag Liner. 8 pages. Daniels-Murtaugh Company, Cedar Rapids, Iowa.

Austin-Western Roller Bearing Jaw Crushers. 8 pages. Austin-Western Road Machinery Company, Aurora, Illinois.

The Johnson Porto-Batcher. 4 pages. C. S. Johnson Company, Champaign, Illinois.

Aiding War Production With Clean, Dry Air. 8 pages. Logan Engineering Company, Chicago.

Belt Conveyors by Continental. 4 pages. Continental Gin Company, Birmingham.

Selectro Vibrating Screens. 4 pages. Productive Equipment Corporation, Chicago.

Compound "M" . . . an Effective Dust-Wetting Agent. 32 pages. Johnson-March Corporation, New York City.

Beco Shaft Joints and Assemblies. 48 pages. Brooks Equipment Corporation, New York City.

Grip-On Safety Pulley Lagging. (Circular). Victor Balata & Textile Company, New York City.

Davey Air Compressors. 28 pages. Davey Compressor Company, Kent, Ohio.

Reps Pipe and Stud Extractor. 4 pages. Reps Tool Company, New York City.

Haiss Hi-Power Buckets. 12 pages. *Haiss Multi-Sheave Buckets.* 8 pages. George Haiss Manufacturing Company, New York City.

Simplicity Asphalt Plants. 72 pages. Simplicity System Company, Chattanooga.

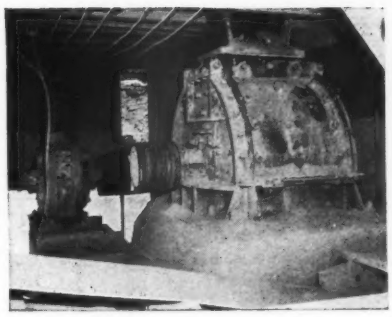
Pyott Quick Detachable Sheaves for Multiple V-Belt Drives. 12 pages. Pyott Foundry & Machine Company, Chicago.

Exactor Hydraulic Control. 8 pages. Sperry Products, Inc., Hoboken, New Jersey.

Magnolia Isotropic Die-Cast Bearing Bronze. (Folder) Magnolia Metal Company, Elizabeth, New Jersey.

How to Maintain Diesel-Electric Locomotives. 20 pages. General Electric Company, Schenectady, New York.

Roller Bearing Jaw Crushers. 4 pages. Austin-Western Road Machinery Company, Aurora, Illinois.



"Pennsylvania" *Reversible* Impactor

preparing Stone Sand of cubical particle shape,—an important element in strongly bonded concrete, — for the Blue Stone Reservoir Project at Snow Flake, W. Va.

Impactor reduction is made by smashing impact without the attrition of internal screening.

Where particle shape is important a "Pennsylvania" *REVERSIBLE* Impactor will deliver a Premium Product.

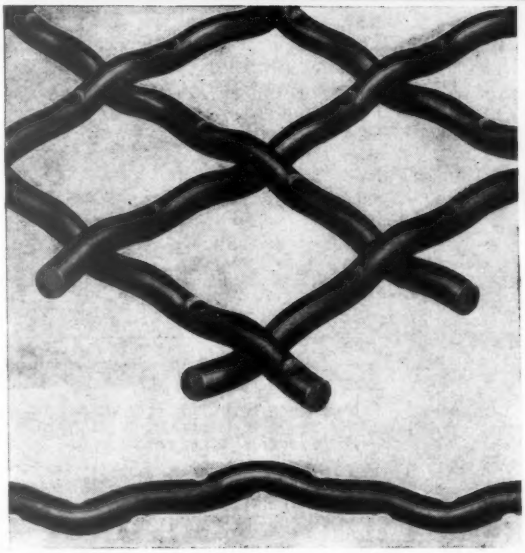
Other services include granular preparation of Ores, Sinters, Refractories and Fluxing Minerals.

Send for Bulletin No. 6015

PENNSYLVANIA CRUSHER COMPANY

General Offices:
Liberty Trust Building, Philadelphia

Assuring ✓ Many extra hours of service ✓ Toughest resistance to wear



BUFF-ALOY ABRASIVE RESISTANT WIRE CLOTH

Production records prove conclusively that BUFF-ALOY is most economical and dependable for sizing stone, gravel, sand and all mineral aggregates.

These qualities alone distinguish it from ordinary steel and other special metals:

Annealed and normalized for maximum uniformity • High torsion at great strength • Greater fatigue coefficient • Properly controlled crimping prevents weak spots and damage to core.

Available in all standard weaves and sizes (special sizes are manufactured to order).

NEW FOLDER 601-BE gives full information on Buff-Aloy. Mailed promptly on request.

DOING BUSINESS FROM COAST TO COAST FOR 74 YEARS

Buffalo WIRE WORKS CO., INC.
ESTABLISHED 1869 AS SCHEELER'S SONS

526 TERRACE BUFFALO, N.Y.

FARREL BACON CRUSHERS

Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants. Engineering Service.

EARLE C. BACON, Inc.
17 John St. New York, N. Y.

The STAND-OUT LOADER

The HAISS "75" is everybody's idea of what a stockpile loader should be. Fast. Mobile. Rugged. Simple. Economical. Write for catalog.

ON WHEELS OR ON CREEPERS

HAISS QUALITY EQUIPMENT FOR 50 YEARS 1892 1942

GEO. HAISS MFG. CO., INC.
HAISS
142nd St. & Rider Ave., New York 51, N. Y.

TRADE NOTES

The control of the Nicholson Company, Inc., designer and builder of concrete storage silos, has been purchased by Wininger & Selby, Inc., whose officers have been actively engaged in the construction business during their entire business careers. Their abilities and experience will substantially supplement the service the organization has rendered during the past 29 years.

Climaxing its annual convention recently concluded in New York City, the National Advertising Agency Network awarded its first prize for the best business-paper advertising campaign to the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, New Jersey for the third consecutive year.

Conservation of mechanical rubber products was again the theme of the winning campaign, carrying on with the educational program that won the company first prize last year.

R. G. LeTourneau, Inc., of Peoria, Ill., announces the advancement of Gordon S. McKenty to general parts department manager, to supervise parts sales, orders and shipping activities for the earth-moving-machinery company.

RECENT PATENTS

Rack and pinion for excavating shovel sticks. Theron G. Gerow, Chicago, assignor to Kensington Steel Company. No. 2,315,781.

Pulverizing mill control system. Jean L. Laboulais, New York City, assignor to Kennedy-Van Saun Manufacturing & Engineering Corporation. No. 2,316,875.

Take-up mechanism for conveyer apparatus. Alexis W. Lemmon, Columbus, Ohio, assignor to Jeffrey Manufacturing Company. No. 2,317,235.

Scraper. Edward R. Barrett, Detroit, assignor to Gar Wood Industries, Inc. No. 2,317,511.

Power pickup and dumping attachment for tractors. Bruno F. Arps, New Holstein, Wisconsin, assignor to Arps Corporation. No. 2,317,578.

Cage for grinding machines and like. William P. Gruendler, University City, Missouri, assignor to Gruendler Crusher & Pulverizer Company. No. 2,317,909.

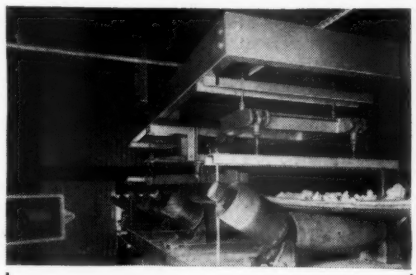
Replacement point for rebuilding drag-line bucket teeth. Leroy M. Moore, Folsom, California. No. 2,317,932.

Rock crusher. Everett N. Wood, Minneapolis. No. 2,318,039.

Piston hammer for rock drills. Edwin B. Davey, Glendale, and Ernest N. Martinson, Riverside, California. No 2,318,063.

Pulverizer. Ernest E. Lynch, Alameda, California. No. 2,318,175.

Renewable-tip pulverizer hammer. Leonard T. Harris, Chicago Heights, Illinois, assignor to American Brake Shoe & Foundry Company. No. 2,318,219.



BUILDERS Toledo Chronoflo

CONVEYOR WEIGH METERS

Dependable equipment for *accurately* weighing and/or blending gravel, cement, crushed rock, limestone or sand, *in transit*, on conveyor belts. Write to Builders-Providence, Inc., 9 Codding St., Providence, R. I., for Bulletin 322.

Sincerely Yours,
BUILDERS-PROVIDENCE

PERFORATED METAL SCREENS

FOR SAND, GRAVEL STONE, ETC.

Manufactured exactly to your specifications.

Any size or style screen, in thickness of steel wanted with any size perforation desired.
We can promptly duplicate your present screens at lowest prices.

Prompt Shipment

CHICAGO PERFORATING CO.
2435 W. 24TH PLACE CHICAGO, ILL.
Telephone CANAL 1459

AUGUST, 1943

The CONCRETE MANUFACTURER

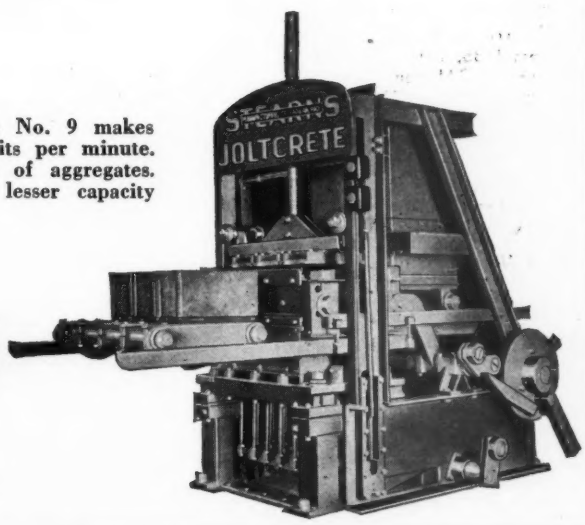
A Special Section of ...

•STEARNS•

First they won the Army-Navy "E" Award—first in the concrete products machinery field to be thus honored. Then the Stearns organization won the Treasury Bullseye flag—over 90% of Stearns men and women buying War Bonds to the extent of 10% of the total payroll.

Stearns plants are going strong. In addition to turning out war material they are making—for necessary construction projects—vibration and tamp type block and brick machines, mixers and skip loaders. *Write for circulars.*

Stearns Joltcrete No. 9 makes nine 8x8x16-in. units per minute. Handles all types of aggregates. Other models of lesser capacity available.



STEARNS
MANUFACTURING CO. - ADRIAN, MICH.
GENE OLSEN, PRESIDENT

Write for literature covering Joltcrete machines. Licensed under the basic Gelbman vibration patents.

The CONCRETE MANUFACTURER

August, 1943

A SPECIAL SECTION OF PIT AND QUARRY DEVOTED TO PRODUCTION MARKETING AND USES OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

Published by Pit and Quarry Publications
538 South Clark St. Chicago 5

●

H. W. BAUMGARTNER
President

STANLEY A. PHILLIPS
Vice-President and Directing Editor

Senior Field Engineering Editor:
W. E. TRAUFFER

Field Engineering Editor:
HARRY F. UTLEY

Eastern Field Engineering Editor:
SPENCER JONES

Secretary
W. T. KLUSSMAN

●

General Manager, Field Contracts:
JAMES E. MONTGOMERY
Telephone HARrison 8558
Chicago 5, Ill.

Eastern Manager, Field Contracts:
W. A. WILSON
Room 1235, 101 Park Ave.
Telephone CAledonia 5-4438
New York 17, N. Y.

Central Manager, Field Contracts:
D. R. EGBERT
859 Leader Bldg.
Telephone CHerry 4432
Cleveland 14, O.

Western Manager, Field Contracts:
JOHN F. VAN WAY
Chicago 5, Ill.

Pacific Coast Manager, Field Contracts:
ROBERT W. WALKER
68 Post Street
Telephone SUtter 6706
San Francisco, Cal.
and
403 West 8th Street
Telephone VAndike 9348
Los Angeles, Cal.

●

Circulation Manager:
RAY L. SMITH, JR.

Concrete Manhole Cover New in Basic Design

Due to the necessity of conserving critical materials, concrete is being successfully applied to many new and novel uses, one of which is as frames and covers for manholes. These concrete products, as developed by the Cast Stone Institute and United Concrete Form Products Company, are new in basic design and structural properties.

In form this manhole cover is essentially a king-post truss, giving maximum load-carrying capacity for the amount of steel and concrete which it contains. Attachment of the radial reinforcing rods to the inclosing channel rim is an important detail, contributing much to the strength of the cover by bringing the high compressive strength of the concrete into play under load. It also makes possible the relative thinness of the edge and the relative light total weight of the cover. This rim serves the additional purpose of preventing chipping of the corners of the cover from traffic wear and especially from the rough handling which the cover usually receives when manholes are opened.

The cover and frame are designed to carry the heaviest wheel loadings permitted on highways (16,000 pounds plus 25 per cent. for impact). It is stated that tests have shown their actual load-carrying capacity is in excess of requirements.

The standard design is applicable to sizes up to 27 inches in diameter, and, in the case of manholes requiring openings larger than 27 inches in diameter, it is suggested that the continued use of cast iron for the cover with the substitution of concrete for the frame will in most cases save 70 per cent. of the iron which would otherwise be required.

The concrete covers made by United Concrete Form Products Company at its New York City and Chicago plants are unusually light in weight in relation to the service for which they are designed and in comparison with the conventional cast-iron covers they replace. The cover for a standard 24-inch manhole weighs approximately 90 pounds as compared to 150 pounds usually required in cast-iron covers for use under traffic. The precast-concrete frame weighs approximately 200 pounds, while cast-iron frames range from 225 to 390 pounds.

Million Blocks Used in War Homes at Chester

One million lightweight concrete-masonry units manufactured locally will be used in the 783-family Highland Gardens war housing project near Chester, Pennsylvania. Armand Carroll, A.I.A., Philadelphia, who designed the houses, calls it "America's largest" private defense-housing project.

Comprising 783 separate living units and costing approximately $3,500,000, the project was financed under FHA Title VI provisions. The owner and builder is the Wilmington Construction Company.

The houses are principally eight-unit row type, each unit including living room, dining room and kitchen on the first floor and three bedrooms and bath on the second.

All party walls are lightweight concrete-masonry units carried up to the roof. Concrete-masonry units are also used as back-up for all exterior walls. Lintels over windows on the garden side of the living rooms are smooth-finished cast stone.

The development occupies a plot of 56.3 acres including 12 acres of public park and playground space. The plan employs a system of loops from main thoroughfares to minimize cross and through traffic. All streets have concrete curbs and gutters.

House plans have been reversed from the usual placement of living rooms on street fronts. At Highland Gardens all living areas are placed on the back of the house facing an open court 70 feet wide.

Three basic architectural designs were used, varied with gable, hip and flat roofs. Further variation was secured by the use of five different treatments of front entrances.

The first group of houses containing 150 living units was officially opened in March, 1943. Plans call for completion of 100 additional living units each month.

The concrete masonry units are being supplied by the Media Concrete Products Company whose proximity to the project saved many ton-miles of transportation for materials.

CEMENT DISPERSION

By EDWARD W. SCRIPTURE, Jr.
Director, Master Builders Research Laboratory

CONCRETE construction on many defense projects is being speeded up through cement dispersion. Engineers, architects, contractors and those connected with the various phases of construction are well acquainted with the many improvements made in the manufacture of Portland cement since its introduction. They are familiar with the facts that better design of mixes and more care in the selection of aggregates have vastly increased the quality of concrete and mortar, but they are also aware that an important problem having to do with workability and durability and the other properties of concrete remained to be solved—the reduction of excess water necessary to place concrete. The vital need for this improvement has been seen for a long time.

Recently there was announced a new principle for the improvement of concrete and mortar—cement dispersion. Research engineers have spent ten years in proving that by adding a cement-dispersing agent to the concrete or mortar mix, the basic problem of all cement mixes is attacked, namely, the excess water required for placeability. Reduction of this water insures improvement of the properties of the concrete with respect to workability, water-tightness, strength and other important qualities.

Action of Dispersing Agent When incorporated in an aqueous medium, the particles of a solid tend to agglomerate and act as large clumps rather than as individual particles. This is known as a flocculated condition and is due to the absence of electrostatic charges on the particles so that when they collide they tend to stick together. If a dispersing agent is incorporated in the flocculated solid-liquid system then the agglomerates or clumps tend to be broken up and the solid particles are distributed more or less evenly through the aqueous medium in the form of individual or discrete particles. The system is then said to be deflocculated or dispersed. The action of the dispersing agent is caused by its orientation with respect to the solid particles whereby these are endowed with electrostatic charges of like sign so that when they collide they are mutually repelled and do not tend to stick together. This effect may also be enhanced by the action of the dispersing agent as a protective colloid which prevents the particles coming in close contact with one another.

The operation of dispersing agents has been known and utilized for a long time with respect to some applications; for example, in the ceramic industries for the deflocculation of clay slips. Until recently no dispersing agents have been known which were applicable to the deflocculation of Portland cement. Recent researches have shown that certain complex organic compounds will disperse cement and will not have injurious effects, such as a lowering of surface tension causing foaming or interference with the hydration reactions of the cement.

The action of a cement dispersing agent on Portland cement in water is similar in its effects to the action of any dispersing agent in a solid-liquid system.

Effects Upon Concrete The dispersion or deflocculation of Portland cement in a concrete or mortar mix is important in a number of aspects. In general it may be pointed out that the reactions on which Portland cement depends for its valuable properties are surface reactions. They are, therefore, a function of the surface area of the cement. For this reason cement manufacturers have consistently increased the fineness of the ground cement clinker. Unfortunately, the full surface area produced by fine grinding is not available for reaction because of the flocculated condition of the cement in the mix. It is perhaps even more unfortunate that this agglomerating tendency is even greater with greater fineness, so that the beneficial effects of fine grinding have been in some measure offset by the formation of clumps. The addition of a dispersing agent to Portland-cement mixes has, for the first time, made available for reaction the full surface area of the cement particles. A dispersing agent in a cement mix, therefore, permits utilization of the cement to the full extent.

The effects of dispersion of the cement particles on plastic concrete or mortar are:

1. More placeable concrete with less water.
2. Increased fattiness.
3. Reduced segregation and bleeding.
4. Greater water retentivity.
5. Reduced shrinkage before hardening.
6. Greater economies.

On the hardened concrete the more important results of the dispersing action are:

1. Increased durability and longer life.
2. Increased water-tightness.
3. Higher strength.
4. Lower volume change.
5. Lower permeability or absorption.
6. Greater uniformity and freedom from gross defects.

Results of Application This principle of dispersion has been widely applied in practical construction. Through the greater placeability and high strengths at all ages, many large defense projects have been both improved and speeded up. In the construction of dome structures, such as igloos for ammunition storage, the problems of bleeding and segregation are particularly acute and in many cases have been solved by the application of cement dispersion.

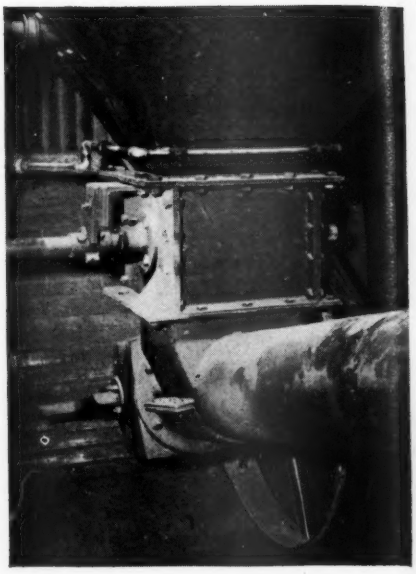
The use of a cement-dispersing agent has quite generally proved economical. Savings in construction cost are, by this means, effected by the greater ease of placing, by the reduced finishing and patching required, by improved mix design, by greater speed in stripping the forms and by the shorter curing period required. An interesting example of the savings effected under certain conditions is the reduction by cement dispersion in water required where it has been necessary to transport or purify the water used in the concrete, as in acid regions or on island bases.

NEW RAMP-LOADED PLANT CUTS PRODUCTION COSTS

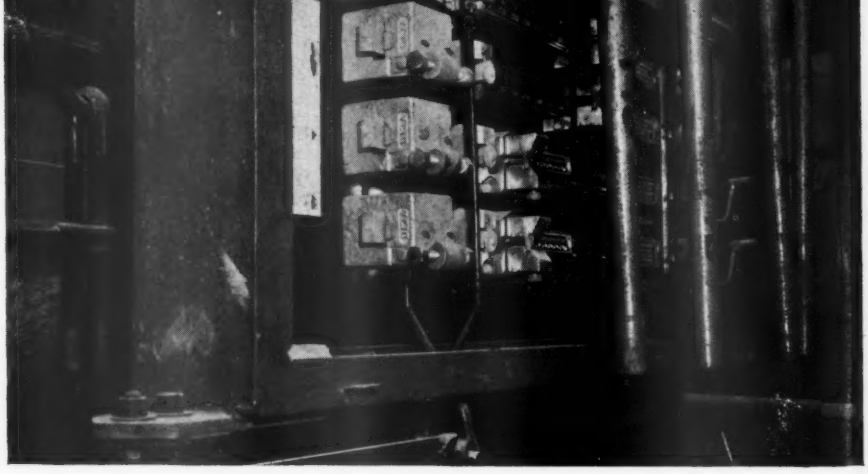
By HARRY F. UTLEY

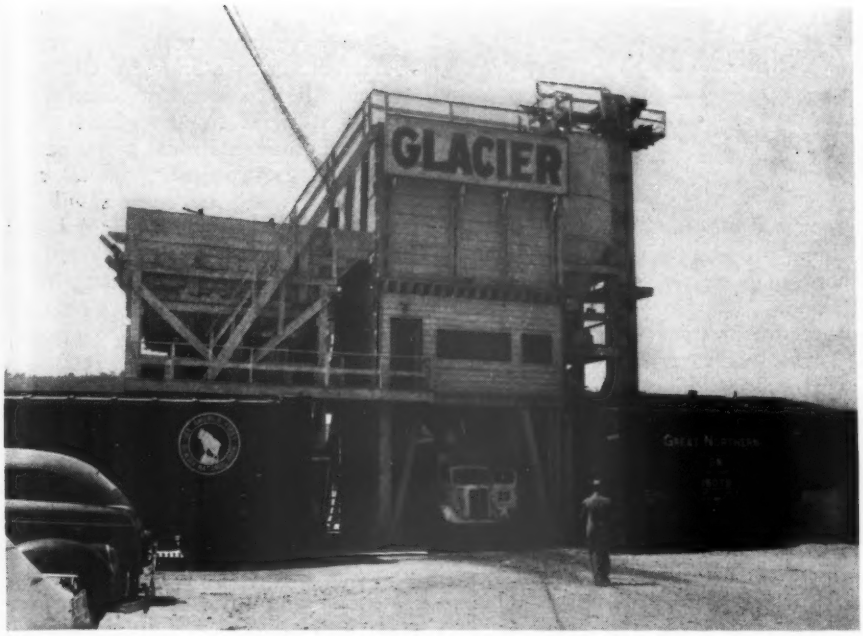
The new ready-mixed-concrete plant of the Boichot Concrete Products Company, Lansing, Michigan, was completed and began operations recently. The storage facilities, supplied by the Butler Bin Company, consist of a 120-cubic yard, 4-compartment aggregate bin and a 200-barrel cement tank. Both are ramp-loaded. Steam for winter operation is obtained from the boiler in the old plant located about 200 feet distant, the pipe-line running underground. The aggregates are heated by live steam released through jets in the bin. One-stop charging of the truck-mixers is a feature, the fleet consisting of 5 Smith-Mobiles on International chassis with capacities ranging up to 5 cubic yards.

Beneath the aggregate bin is a 3-cubic yard, 4-material aggregate batcher (right) and an automatic cement batcher. Both aggregates and cement are discharged into the mixers through a collecting hopper with a telescoping loading hose. Two of the truck-mixers are pictured above. The entire plant was designed by the Butler company and largely replaces the old batching plant for preparing concrete for the company's customers. The old plant employs elevators for carrying the aggregates and cement up to its bins. This expense is eliminated in the new ramp-loaded plant, cement and aggregates being discharged directly into the bins, making no rehandling necessary. This factor is more important to this plant than to some since the aggregates are trucked in from the plants of the Boichot Sand & Gravel Company, parent concern, north of the city and, by dumping into the bins of the new plant and keeping them full, there is no need for maintaining a stock pile.



The screw-feeder (above) from the cement bin to the batcher. After the required weight of cement is set on the beam, the operator presses a button and the screw begins turning. When the weight comes within 50 pounds of that required, the screw automatically shifts to low speed, dribbling in the last few pounds very accurately. Below is the 125-gallon water batcher.





LEFT—The Hudson Street batching plant with one of the truck-mixers being loaded.

Seattle Gravel Firm Acquires Extensive Ready-Mix Business

THE Glacier Gravel Company, Seattle, now owned by the Klinker Sand & Gravel Company of that city, had for seventeen years produced sand and gravel for the wholesale market only. In April, 1940, however, the entire physical equipment of the Crosby Lighterage Company was taken over, putting the company in the ready-mixed-concrete business. A fleet of 10 trucks was equipped with bath-tub bodies for delivering the concrete. The company at once began adding truck-mixers, said to have been the first in the city, and now has a total of 30 in addition to the 10 original machines. All the mixers are Jaeger 2- to 2½-cubic yard machines mounted on special Mack cab-over-engine truck chassis having air brakes and all the other latest features. At times it is necessary to rent additional truck-mixers from producers at Everett, Tacoma, Enumclaw, Whidby Island, and other near points.

The physical equipment purchased also included the concrete-batching plant which the Crosby Lighterage Company had operated at Glacier's main yard at 1001 Fairview Avenue North, and the North Lake plant at the north end of Lake Union about 1½ miles north of the main yard.

These plants were well located to take care of ordinary commercial demands, but when the war-construction program began to get under way several other strategically-located plants were built as needed. One at Hudson Street has supplied the concrete for many war projects, warehouses, bomb shelters, etc. Another at Pier 41 near Smith's Cove supplied the concrete for what is said to be the largest naval-supply depot yet built.

A third plant at Renton, 30 miles southwest of Seattle, supplied over 75,000 cubic yards of concrete for an aircraft plant. These plants are of a temporary nature but might be made permanent if the post-war demand should justify it. Several other smaller portable batching plants are hauled on barges to the points of use and are set up there. Five crawler cranes are used with these plants. A number of Jaeger portable hoppers are also used to facilitate the handling of the concrete at the jobs.

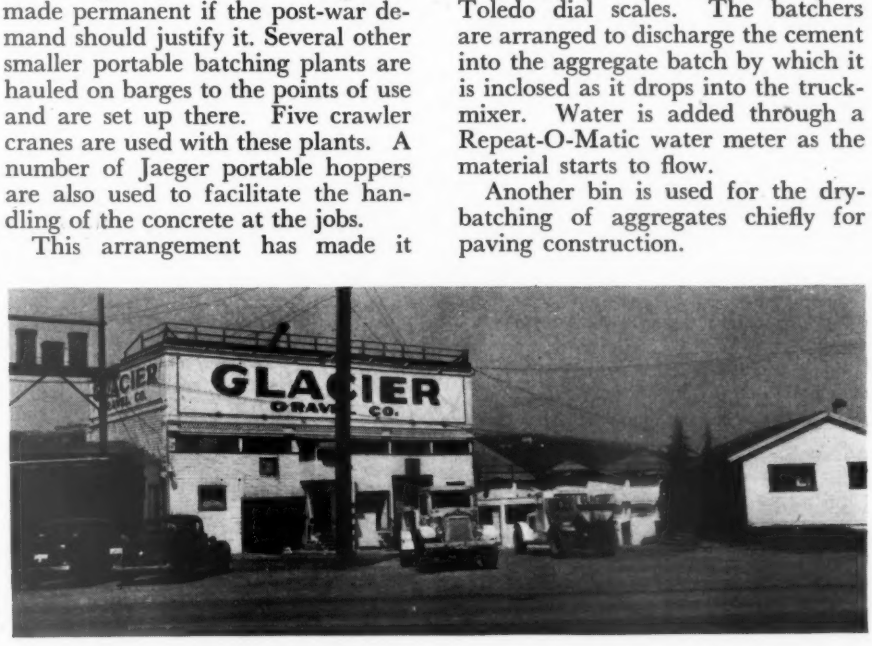
This arrangement has made it possible for the company to meet the greatly-expanded demand for concrete with great efficiency and speed and with a small expenditure of rubber, gasoline and labor. In 1941 more than 350,000 cubic yards of concrete was produced and in 1942 the total exceeded 400,000 cubic yards. Much of this material was used for shipyards, aviation plants, and other war projects.

At the main yard a row of aggregate bins is used for truck-loading and to feed the two sets of weighing batchers in the concrete plant. One set serves a Chain Belt Rex mixer which is used for loading the bath-tub bodies. The other set of batchers, equipped with Fairbanks dial scales and with a Worthington Gamon water meter, is used to load the truck-mixers. Cement in sacks is delivered to both sets of batchers on belt-conveyors. Crawler cranes feed sand and gravel to the bins from barges.

At the Hudson Street plant the aggregates are also received on barges and are unloaded by a Link-Belt crane with a ⅞-cubic yard Owen clam-shell bucket either to a stock pile or into a 100-cubic yard bin which has compartments for sand and two sizes of gravel, 1½ and ⅞-inch. Cement is unloaded from cars in bulk by a scraper and is elevated into a 3-car capacity steel tank.

The aggregates are discharged through clam-shell gates and cement by a screw-conveyor into separate weighing batchers equipped with Toledo dial scales. The batchers are arranged to discharge the cement into the aggregate batch by which it is inclosed as it drops into the truck-mixer. Water is added through a Repeat-O-Matic water meter as the material starts to flow.

Another bin is used for the dry-batching of aggregates chiefly for paving construction.



The Fairview Avenue plant. One of the bath-tub type trucks is at right.

Tips on Maintenance for Ready-Mix Operators-IV

An interesting analysis is contained in the accompanying tabulation of repair parts shipped during a two-year period by a manufacturer to 20 fleet operators selected at random from his list of customers. (Table I). Parts required for the auxiliary engines are not included in this tabulation because most operators obtain such parts from the nearest engine manufacturer's agency.

The years 1941 and 1942 represent two active years during which the equipment was operated more days and hours per day than would normally be the case. As a result the frequency of repair-part orders was undoubtedly increased during this period. However, allowance should be made for the probability that some operators either made certain repair parts themselves or had them made locally.

The tabulation of repair parts may vary for different designs of truck-mixers and agitators, yet it indicates the general trend of repair-part requirements for equipment of this class.

In analyzing the individual items of repair parts ordered, the following comments are pertinent:

The orders for charging doors and charging-door screws are frequent enough to indicate to the operator that he should have one or more of each in his parts stock depending on the number of units in the fleet. The horizontal-drum type of truck-mixer or agitator is loaded through the charging door and there have been frequent occasions when drivers forgot to close the door or did not close it tightly enough and when the drum was revolved the door was smashed and part of the load was lost. The high-discharge type of truck-mixer eliminates this possibility of damage by loading through a stationary hopper through the rear end of the drum.

The discharge door and its operating screw are not subject to the same dangers as is the charging door. These parts need not be kept on hand. The discharge-door screw is subject to wear but usually the time required for the shipment of a replacement screw from the factory will not put the unit out of service for lack of the new part.

The engine clutch seems to get a great deal of wear. This is one point where proper and frequent adjustment may be necessary. However, care in operation when reversing the drum and care in operating the controls when starting will go far toward making the clutch last. When the clutch fails to function, the whole unit is out of service and for this reason the operator should carry in his parts stock the clutch driving plate with friction disk on each side, the throw-out collar, slotted links and pins, and the sliding sleeve.

In the matter of miscellaneous parts required for the transmission those most frequently ordered are the shifter mechanism, oil seals, shifter fork, sliding clutch and bearings. A few of these parts in an operator's stock will stand him in good stead to keep his units working. If the sliding clutch is worn, it will cause accelerated wear of the internal teeth of the bevel gears and the latter will then require replacement. Wear of the sliding clutch occurs when the transmission controls are not in proper adjustment and, as a result, the teeth on the sliding clutch do not engage the bevel gears to the full depth.

Some designs of truck-mixer transmissions utilize wet clutches instead of the gear type referred to above. Here the problem is one of insuring the correct adjustment of the clutches for proper operation and to reduce wear on the clutches. Repair parts similar to those enumerated for the engine clutch would be required for maintenance of the wet clutches. Also, with this type of transmission it is exceedingly important that the user follow carefully the manufacturer's recommendation as to the grade and viscosity of oil with which to fill the transmission case because of the effect on the operation of the wet clutches.

The drive pinion on the output shaft of the transmission gets a great deal of service distributed over a relatively small gear with few teeth. One or two driving pinions in the parts stock represent a good investment.

The flexo-joint is the connection between the fixed discharge pipe from the water-measuring tank and the continuation of the water pipe line which rotates with the mixer drum. This joint includes a synthetic-rubber gasket which is not affected by hot water or grease. The normal life of the flexo-joint gasket is about three months, although if the recommendations given under the section on adjustments are carefully followed, the gaskets will last much longer. The water outlet in the mixing drum, commonly called a bell, has a flexible rubber diaphragm seal to prevent mortar entering the bell and pipe line. The rubber diaphragms also have a life of approximately three months. Therefore, a supply of flexo-joint gaskets and water-bell diaphragms should be kept on hand for the frequent replacement required.

The other items in the tabulation of repair part shipments are not specifically discussed because their freqency is not sufficient to cause concern, and the lack of them will not normally put the unit out of service. The total quantity of repair parts shipped for the 111 truck-mixers and agitators over a two-year period is considered quite moderate in view of the heavy-duty service rendered by the equipment.

Wear of Blades Wear of the truck-mixer or agitator drum blades is due to the abrasive action of the aggregates. Most manufacturers use Man-Ten steel or its equivalent for blades. These special steels have a much greater manganese content than ordinary steel plate and resist wear much longer. The blades should be replaced when their depth has worn down about 15 per cent. This decrease in depth is accompanied by over-all wear of the blades; they become thin and sections break out. Worn blades impair the mixing and discharge efficiency.

Water Valves Water valves should be watched carefully for leakage. Leaky valves ruin the control of the quality and consistency of concrete. On those units where the flow of water from the water tank to the drum is by gravity the control valve can be checked for leakage by reading the glass gage for the full tank with the valve closed and the tank mechanism set for the amount of water required for the batch of concrete when leaving the loading plant or yard. Another read-

By ARTHUR A. LEVISON
Manager, Construction Equipment,
Blaw-Knox Division, Blaw-Knox Company

TABLE I.—MANUFACTURER'S RECORD OF TWO YEARS (1941 AND 1942) SHIPMENT OF REPAIR PARTS FOR TRUCK-MIXERS AND AGITATORS

Number, Size and Age of Units in Fleet	Charging Door Screws	Charging Doors	Discharge Door Screws	Discharge Doors	Set of Mixing Blades	Front Pedestal Bearings	Rear Rollers	Transmission Control Linkage Parts	Engine Clutch Parts	Brake Drums	Bevel Gears for Transmission	Miscellaneous Transmission Parts	Fixed Discharge Chute	Discharge Chute Bowl	Discharge Chute Extension	Drive Pinion	Flexo Joint Gasket	Water Bell Outlet	Rubber Diaphragms for Bells	Water Measuring Tank Repairs
7-2½ cu. yd. units 2 to 6 years old	5	10	4	0	7	0	3	8	7	4	4	3	1	0	0	4	42	4	42	4
8-2½ cu. yd. units 5 to 8 years old	5	5	3	2	4	1	2	5	5	3	2	1	7	4	4	3	50	5	53	2
6-2½ cu. yd. and 4½ cu. yd. units 3 to 7 years old	4	4	4	0	1	3	4	1	10	3	9	9	3	0	0	3	45	3	53	2
3-2½, 1-3½, and 1 4 cu. yd. units 4 to 5 years old	3	4	3	3	2	0	1	1	2	2	1	3	2	1	3	0	28	2	32	1
2-1½ cu. yd. units 5 years old	0	1	0	0	2	0	0	1	1	0	0	1	1	1	0	2	16	2	44	4
3-1½ cu. yd. units 3 years old	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	1	30	0
3-2½ cu. yd. units 5 years old	1	1	2	1	1	0	2	1	3	1	2	2	0	3	2	0	16	2	22	3
3-2½ cu. yd. units 5 years old	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	20	1	24	2
3-1½ cu. yd. units 4 to 6 years old	0	0	0	0	0	0	0	0	3	0	1	1	0	0	0	2	22	0	24	0
2-4 cu. yd. units 4 years old	0	2	0	0	2	0	0	0	2	0	0	2	0	0	0	0	14	1	22	0
4-1½ cu. yd. units 2 to 6 years old	0	0	0	0	0	0	1	0	3	0	0	2	0	0	1	4	25	2	34	0
5-1½ cu. yd. units 2 to 5 years old	0	2	0	0	2	0	0	1	1	0	0	2	0	0	0	4	31	2	34	0
18-4 cu. yd. units 2 to 5 years old	3	1	0	3	0	0	0	0	9	2	2	9	0	0	0	0	71	0	83	1
4-3½ cu. yd. units 2 years old	4	4	0	0	0	0	0	0	4	0	0	2	0	0	0	0	12	1	9	0
18-1½ cu. yd. units 2 to 6 years old	0	0	4	0	0	0	1	0	6	0	0	0	0	2	2	0	51	0	33	0
4-1½ and 12½ cu. yd. units 3 to 5 years old	0	0	5	0	0	0	1	0	1	0	0	0	0	0	0	0	24	3	25	5
4-3½ cu. yd. units 5 years old	0	6	3	4	0	2	1	0	7	0	0	6	0	1	1	4	22	0	24	1
2-2½ cu. yd. units 6 years old	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	12	1	6	0
3-2½ cu. yd. units 4 to 5 years old	0	0	1	1	0	1	2	1	0	0	0	5	0	0	0	0	17	0	32	0
2-1½ cu. yd. units 4 years old	1	1	0	0	0	1	0	0	2	0	0	2	0	0	4	0	15	0	12	0

ing of the glass gage on arrival at the job will indicate the amount of leakage *en route*. When it is found that valves leak, replace the valve stem and seats.

Metal parts and piping connections inside the water tank will wear and corrode. Rubber hose ultimately rots. All these items should be inspected and tested because water control for truck-mixer operation is a critical factor which affects the strength, uniformity and consistency of the concrete.

Cost of Maintenance Tables II and III show the maintenance costs by units for two ready-mixed-concrete operations, one of which is located in the mid-west and the other in the east. The data cover operations for the year 1942.

The operator for Table II did not segregate his maintenance costs for the mixer bodies from the maintenance costs of the chassis. His fleet of 21 units were all 2½-cubic yard size. The average age of the bodies is approximately 5 years and the average age of the chassis is 3 years. Included in the fleet were four units which were in such poor mechanical condition that their use was restricted to periods of peak production. It is intended to abandon the use of these bodies in the future. The average output of the 21 units was 4,600 cubic yards each. The average cost of maintenance for the mixer body and chassis was $772.80 for the 11-month period reported. The cost of maintenance was 16.7 cents per cubic yard of concrete mixed and delivered.

The operator whose data appear in Table III kept separate records of the cost on maintaining the mixer bodies and the chassis. The data indicates that the maintenance cost of the bodies is approximately one-third of the total maintenance cost for the bodies and chassis combined. This fleet contained ten 2-cubic yard units with an average age of the chassis of 2½ years and an average age of the bodies of almost 3 years. The average output per unit was 2,573 cubic yards for the year. The cost of truck-mixer repairs averaged $116.42 per unit, and the repair cost per chassis averaged $224.72 per unit. The cost of maintenance for bodies and chassis combined per cubic yard of concrete mixed and delivered was 13.2 cents.

An off-hand comparison between Tables II and III might indicate that,

TABLE II.—PRODUCTION AND MAINTENANCE COSTS FOR TRUCK-MIXER FLEET DURING 1942.

Truck No.	Age of Chassis (*years*)[1]	Age of Truck-mixer (*years*)[2]	Peak Production for One Month (*cubic yards*)	Minimum Production for One Month (*cubic yards*)	Total Production for 11 Months (*cubic yards*)	Maintenance Cost of Trucks and Truck-mixers	
						Total	Cents per Cubic Yard
1	6	6	665	105	4570	$ 905.75	19.8
2	1	11[3]	636	140	3342	736.14	22.0
3	2	1	792	137	5206	621.36	12.0
4	5	5	840	61	4697	687.38	25.7
5	5	5[3]	584	55	2676	1092.73	40.8
6	5	5	823	84	5488	1016.45	18.5
7	4	7[4]	683	24	3831	1181.57	30.8
8	3	1	1032	143	6390	846.10	13.0
9	3	4	660	193	5369	1144.50	21.3
10	3	4	752	176	5326	1085.86	20.3
11	2	6	817	192	5416	833.12	15.3
12	2	1	1216	161	6035	921.01	15.2
13	2	6	800	95	5763	897.61	15.5
14	2	6	748	198	5384	816.97	15.1
15	2	11[3]	376	160	2934	482.26	16.4
16	2	1	1093	118	6154	810.06	13.1
17	1	1	1100	198	5806	316.42	5.4
18	2	11[3]	430	111	2073	557.77	26.9
19	1	5[5]	730	422	4355	396.02	9.1
20	2	2[6]	786	387	3182	376.88	11.8
21	5	2[6]	789	352	2637	502.89	19.0
Totals	.....	.....	.....	.....	96634	$16,228.85	16.7[7]

[1] All truck chassis are conventional heavy-duty, two-axle units.
[2] All truck-mixers are 2½-cubic yard size, horizontal-drum type.
[3] These truck-mixers are in bad condition and their use will be discontinued; use of these units restricted to peak operations.
[4] This truck-mixer in poor condition but can be repaired and made efficient.
[5] Used only 7 months out of the 11 months reported.
[6] Used only 5 months out of the 11 months reported.
[7] This is the average cost per cubic yard for repairs to trucks and truck-mixers over the entire 11-month period.

aside from the equipment in Table II being older, the lighter trucks and smaller bodies of Table III represent a more economical operation from the standpoint of maintenance costs of the equipment. However, in the case of Table III the average production per truck-mixer of 2,573 cubic yards would be increased by 25 per cent. had the bodies been of the 2½-cubic yard size. This would make the annual production 3,216 cubic yards for each unit. Table II showed an average production per unit of 4,600 cubic yards, which is 40 per cent. larger than the estimated average production of the Table III fleet on the 2½-cubic yard basis. The wear and consequent maintenance costs of the equipment are a direct function of the amount of use, and it follows that by applying the 40 per cent. increase to the 13.2 cents maintenance cost per cubic yard of Table III a cost of 18.5 cents per cubic yard is obtained, which is 10 per cent. higher than the equipment-maintenance cost in Table II.

It is hoped that this article can be supplemented in the future with additional cost data on the maintenance of truck-mixer and agitator fleets. It would be helpful indeed if more operators kept such cost records and separated the repair costs for the bodies from those of the chassis. These data can be prepared for publication as they have been in this instance without revealing the source, should the operators furnishing the data so desire.

TABLE III.—PRODUCTION AND MAINTENANCE COSTS FOR TRUCK-MIXER FLEET DURING 1942.

Truck No.	Age of Chassis[1] (*years*)[1]	Age of Truck-mixer (*years*)[2]	Production for Year (*cubic yards*)	Cost of Truck-mixer Repairs	Cost of Truck Chassis Repairs	Cost of Truck-mixer Repairs (*cents per cubic yard*)	Cost of Truck Chassis (*cents per cubic yard*)	Cost of All Repairs (*cents per cubic yard*)
1	4	4	3,050	$ 56.42	$ 372.96	1.8	12.2	14.0
2	3	3	2,861	305.29	282.38	10.7	9.9	20.6
3	2	3	3,346	49.97	258.47	1.5	7.7	9.2
4	2	3	3,743	75.22	228.27	2.0	6.1	8.1
5	1	4	1,410	185.35	58.38	13.1	4.1	17.2
6	4	¼	238	15.41	.....	6.5	.....	6.5
7	1	4	2,785	217.43	421.42	7.8	15.1	22.9
8	5	4	2,226	81.64	187.28	3.6	8.4	12.0
9	2	2	2,236	95.87	237.57	4.3	10.6	14.9
10	1	1	3,833	81.65	200.44	2.1	5.2	7.3
Totals	.....	.....	25,728	$1,164.25	$2,247.17	4.5[3]	8.7[3]	13.2[3]

[1] All chassis are of the light type. Trucks Nos. 1, 6 and 8 are conventional chassis; all others are cab-over-engine type.
[2] All truck-mixers are horizontal-drum type, hauling 2 cubic yards to the load.
[3] These costs are averages for the entire fleet of 10 truck-mixers.

Driveways Into Job Considerable damage to truck chassis and mixer bodies has resulted from bad driveways leading from the limits of the project to the point at which the concrete is to be discharged. One operator instructs his drivers not to deliver the concrete unless the driveway into the job is made reasonably safe for the equipment. Many times the judicious use of some planks and timbers will go a long way toward saving the equipment from serious harm. The operator is using good judgment in demanding that driveways be in reasonably usable condition.

Allow Time for Servicing Equipment In many parts of the country the war-construction program has involved round-the-clock operation, and equipment has been woefully neglected because of continuous use. This practice can only lead to ultimate failure of the truck chassis and truck-mixers. Operating schedules should be established to allow time for cleaning, lubrication, adjustment and repair. Frequently, consultation between the ready-mixed-concrete manufacturer and the customer will result in delivery schedules which will allow the equipment to receive proper care. This has to be done if the equipment is to be preserved for continued use.

Due to restrictions of the War Production Board, the ready-mixed-concrete operator to-day faces great difficulty in obtaining new truck chassis and replacement truck-mixers or agitators. Under existing conditions even the shipment of repair parts from the factories is delayed far beyond normal deliveries. The ready-mixed-concrete industry has to conserve the equipment it now has and to do this it must take constant care of the equipment now in use.

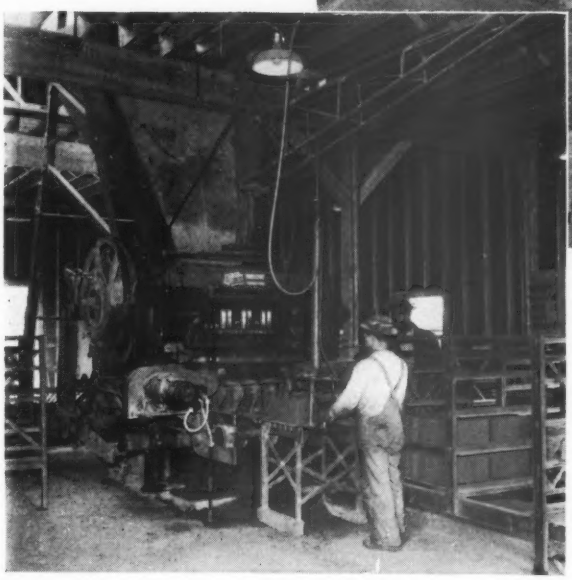
The Fischer Lime & Cement Company of Memphis has been busy of late supplying 90,000 cubic yards of ready-mixed concrete to a new naval air base.

A temporary plant was set up on the site of the job with deliveries averaging about 450 cubic yards per ten-hour shift.

The McVaugh Ready Mixed Concrete Company of Anderson, Indiana, has filed a notice of dissolution with the Indiana Secretary of State at Indianapolis.

RIGHT—The concrete-block plant of the Dayton Builders' Supply Company.

BELOW — The block machine which has a capacity of ten 8-inch units per minute.



Ohio Material Dealer Erects Own Plant and Shares in War Demand

another ON THE SPOT report

FOR years the Dayton Builders' Supply Company, Dayton, Ohio, a 60-year-old concern, had sold its customers concrete blocks which were made by manufacturers in other cities. Much thought had been given to the construction of a plant and eventually one would probably have been built. Then came Pearl Harbor and the huge war program in the Dayton area which created a volume of demand that the few existing plants in this clay-products center could not meet. Because of this demand and the fact that the company could not obtain the necessary blocks to fill its commitments, it was decided to build a plant in spite of the difficulty of obtaining much of the necessary equipment.

The decision to build was made in March, 1942, construction was begun on April 3, and the plant was in operation on June 23. Because of the necessity for speed, it was impossible to get all the desired mechanical-handling equipment in time. For this reason the plant was designed around a complete Besser Super-Vibrapac unit in such a way that the manual handling of the aggregates could later be replaced by a mechanical system.

The plant was operated at full capacity immediately, producing an average of nearly 5,000 eight-inch blocks or their equivalent per 8-hour shift. During the entire summer all the curing was done out-of-doors. As cool weather approached, two 12- by 80-foot curing rooms were built. These have Celocrete block walls and Flexicore roofs. At the same time, as a part of the plant structure, an office was built, and this, too, has Celocrete blocks walls and a Flexicore roof and has steel-sash windows. On November 12 an open house was held to celebrate the completion of this work, and more than 200 interested people attended.

The main plant building is a temporary wooden structure with Gyplap siding and a built-up flat roof. This will be replaced as soon as possible with a more permanent type of structure. Space has been provided for a second block machine and the necessary equipment to go with it.

Gail B. Hamer, president, and P. C. Merrell, plant superintendent.

Nearly 90 per cent. of the output of the plant has gone to the important air fields in the Dayton area. More than 200,000 blocks of assorted sizes were supplied for the Air Command Building at Wilbur Wright Field, over 78,000 for the Maintenance Depot, and over 175,000 for the Administration Building. Many thousands of blocks were made for this and other fields to be incorporated in structures which required from 25,000 to 75,000 blocks each.

Almost the entire output of the plant is light-weight blocks made with Celocrete aggregates. Sand and gravel aggregates have been used only on special order or on the few occasions when Celocrete was not available. This material is received by railway from the plant of the Cleveland Slag Company in Cleveland in two sizes—B, from ⅜-inch down, and C, which serves as sand.

These materials are unloaded manually from the gondola cars to an asphalt floor at a piece-work rate of $10 per 70-cubic yard car. One man unloads a car per day. From

the piles these materials are loaded into pneumatic-tired wheelbarrows which hold 4 cubic feet level full. Eight barrows are used for each batch and three men load these while another batch is being mixed. The cement is dumped into the mixer from sacks.

A batch consists of 12 cubic feet of the coarse Celocrete, 36 cubic feet of fine Celocrete and five bags of cement—about a 1:9 mix by volume.

The Besser 50-cubic foot mixer is placed with its top slightly above the floor level and has a protective grating which is kept in place. Water is measured by a Buffalo automatic meter from the city lines. A batch is mixed for 4 minutes after all the materials are in the mixer. The concrete is discharged through a gate operated by a crank and chain into the Besser skip-bucket. This in turn discharges it into the hopper of the block machine.

At first the usual procedure was followed and the aggregates, the cement, and finally the water were dumped into the mixer in that order. After some experimentation it was found that better results could

The 50-cubic foot mixer and automatic water meter.

be obtained by first putting in the water and then the coarse aggregate. After the latter has become saturated the fine aggregate and then the cement are added. In this way all the cells of the coarse pieces of Celocrete are said to become filled with water and, as the block cures, this water comes to the surface, forming a vapor in the curing rooms and insuring the complete hydration of the cement. This process is said to cure the block from the inside out and to give it a finer texture.

The amount of water to be added is left to the judgment of the mixer operator. Sometimes after a heavy rain no additional water is required.

High-early-strength cement is used and 18½ to 19 blocks are obtained from each sack. The strength of these blocks exceeds 1,000 p. s. i. in 28 days and some sent out after 48 hours have shown over 800 pounds on test. An 8- by 8- by 16-inch Celocrete block weighs only 31 pounds compared to 42 pounds for a sand-and-gravel concrete block.

The Besser Super-Vibrapac block machine has all the latest automatic features. The blocks are transferred by an air-operated off-bearer on a swinging boom to Chase steel racks which have hinged supports for the pallets and which have space for 60

Heating system consisting of drum, pump and two salamanders.

blocks. Two Lewis-Shepard hand-operated lift trucks are used to move these blocks into the curing rooms.

The curing rooms are heated by an Aeroil automatic oil-burning heating system. A small electrically-driven pump on the top of a 55-gallon drum of fuel oil fires two salamanders, one placed at the outer end of each room. As soon as one room is full its heater is turned on and the same procedure is followed with the other room. After about 10 hours the night watchman turns off the heaters. The doors at the ends of the rooms are adjusted to allow a slow circulation of air through the rooms. A temperature of about 100 degrees F. is maintained in this manner and the excess

Electric lift-truck taking blocks into the yard.

moisture from the blocks keeps the humidity high. A similar heating system at the inner ends of the curing rooms is used only in extremely cold weather.

Before the curing rooms were built quite satisfactory results were obtained with the system of outdoor curing used. With this system only 48 blocks were placed on each rack and empty pallets on their top decks. These pallets protected the blocks from the sun and rain. As the company has 100 racks, it was possible to leave the blocks on the racks for 24 hours before piling them. With occasional sprinkling the blocks were strong enough to be handled after that length of time.

An Aurora Steel Products Company electric lift truck, with Exide batteries and an Automatic Transportation Company motor, is used to move the cured blocks into the yard. This is now paved for an area 150 feet by 300 feet but will be enlarged. The present storage capacity is about 70,000 units of different sizes.

A Kirk & Blum vibrating table in the plan has been used for the manufacture of lintels, and joists will be made as soon as the demand for blocks slackens.

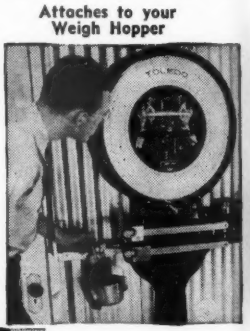
[SC]² PRECISION CONCRETE CONTROL

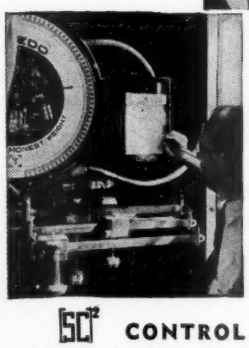
IMPROVES QUALITY
REDUCES COST

Attaches to your Weigh Hopper

Moisture Meter

The only unit capable of determining moisture content in ONE minute.





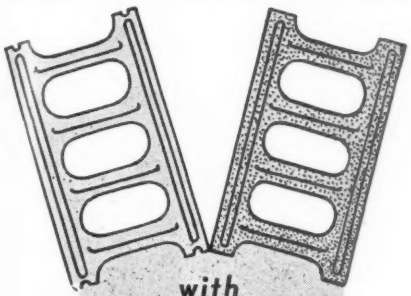
Compensator

Delivers correct DRY weight of aggregates and ADDED water. Makes a graph record of EVERY BATCH.

[SC]² CONTROL produces remarkable uniformity. Is always approved by concrete engineers. Has definite sales value. Write for our booklet "PROFITS IN CONCRETE."

SCIENTIFIC CONCRETE SERVICE CORP.
McLachlen Bldg., Washington, D. C.

YOU'RE PREPARED
for mass block production



with
COMMERCIAL
Cored *Steel* Pallets

The perfect pallet for vibrators or tampers. Fits the core box—no grinding or filing—easy to handle, no breaking, warping or cracking.

Blocks made on Commercial Pallets cure perfectly.

Write for our literature.

THE COMMERCIAL SHEARING AND STAMPING CO.
YOUNGSTOWN, OHIO

SAUERMAN
Power Scrapers

Dig and haul any material for few cents per yard.

Operated by one man.

EVERY SAVING in man-hours at pits, mills and quarries is a direct contribution to the war effort, Sauerman Power Drag Scrapers are chosen for excavating and stockpiling because this simple, sturdy equipment has a 30-year record for conserving labor and power in moving all kinds of earth materials.

Write for catalog

SAUERMAN BROS., INC.
534 S. CLINTON ST., CHICAGO, 7, ILL.

Products Manufacturers Reported Making 37 Special War Items

Concrete-products manufacturers are making more and more items of concrete to replace familiar iron or steel articles which are no longer being made because of the growing need for these metals by the armed forces. Reports tabulated from various sources by The Portland Cement Association shows that at least 170 concrete-products plants are making one or more of 37 special items using concrete to replace or conserve critical materials.

Lawn rollers made of concrete without the use of any metal parts are among the new concrete products in large-scale production. One products plant has made 25,000 of these rollers. Due to the shortage of steel the traditional type of metal lawn rollers is said to have practically disappeared from the market. Mail-order houses are cataloging the concrete rollers with wooden handles and axles.

Concrete splash blocks and downspout water spreaders are reported to be in demand in some communities where the city does not allow rain water from house roofs to be drained into the sanitary sewer systems. Several concrete-products plants have filled large orders for these specialties.

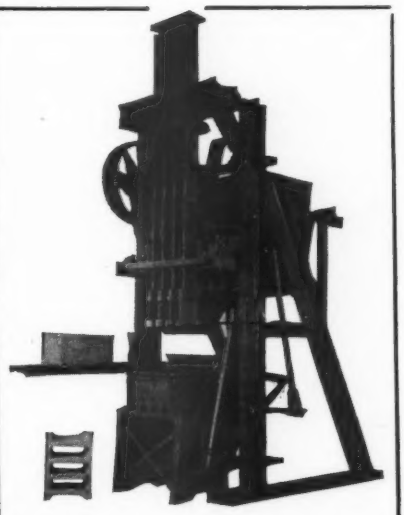
On the Eastern seaboard some products plants have been busy making keel blocks used as foundations for shipways in large shipyards. Keel blocks are precast concrete units approximately 18 by 12 by 10 feet long.

Heavy concrete ballast blocks weighing approximately 200 pounds per cubic foot are reported to be in considerable demand in the East by the Navy and Maritime Commission. More than 1,250,000 ballast blocks were sold in the New York area last year. Some are made with copper slag or low grade iron ore aggregate to give the required weight.

Similar heavy concrete is being used to make cylindrical counterweights for overhead doors of airplane hangars.

Large-scale use of 500-gallon concrete tanks for fuel-oil storage is reported in California military camps. Scarcity of steel pipe is said to have prevented the extensions of natural-gas lines to many camp areas, so heating is done with oil.

Concrete manhole covers and rings and precast catch-basin gratings and assemblies continue in large-scale demand in some areas.



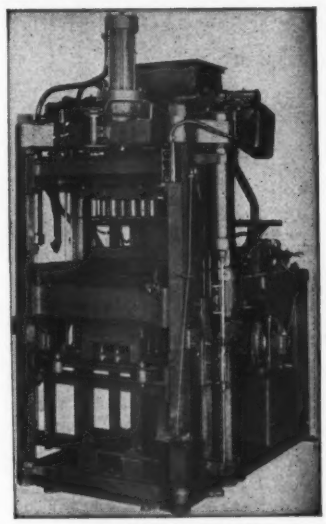
An All-Purpose Machine

The Junior Stripper will turn out more blocks per man than any other hand-operated machine on the market . . . 200 per hour being easily maintained! Nor has quality of output been sacrificed for the sake of speed. Units are uniformly dense, true to shape, of uniform texture.

Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers and Jolterete, Stearns mixers, and Cast Iron and Press Steel pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Ideal, Universal, Stearns, Blystone mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Friel, Manager **Columbus, Ohio**

Why not BUY the LATEST FASTEST and BEST PRODUCTION BLOCK MACHINE



HYDRAULIC VIBRA PRESS

Write for information.

KENT MACHINE CO.
Cuyahoga Falls, Ohio

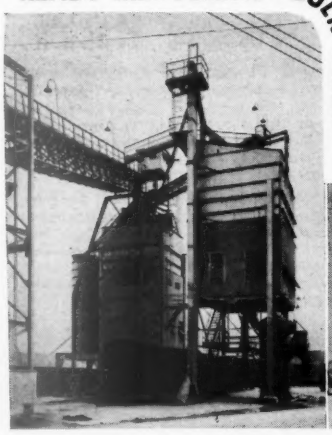
Engineered BUTLER Design

It's Design That Makes The Difference

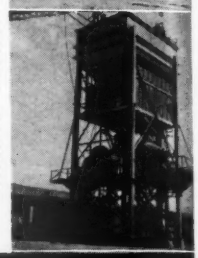
There's a vast difference between "just another plant" and a really successful installation; and that difference can be expressed in just two words: Engineered Design.

The symbol above is your guarantee that whatever Butler equipment you may be interested in will be *right* for your job, because it is *engineered* to fit the specific installation. Whatever your equipment needs may be, be sure to consult your Butler engineer — let him show you how Engineered Design will save you time and money. Write for literature today.

READY MIX PLANTS • BULK CEMENT

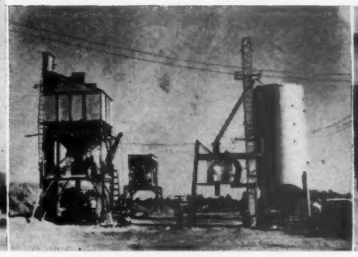


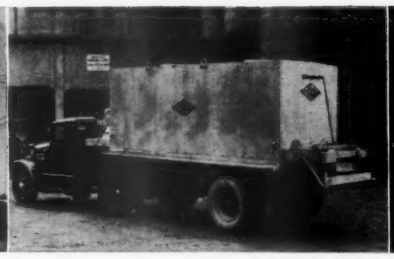
MIXING PLANTS • SAND AND GRAVEL PLANTS

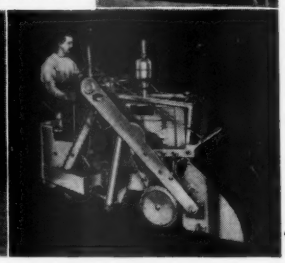


BUTLER BIN CO. WAUKESHA WISCONSIN

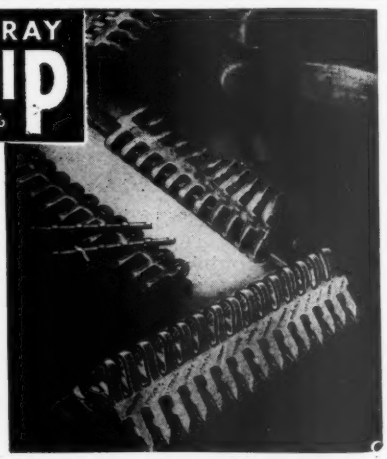
PLANTS • BULK CEMENT TRANSPORT • CARSCOOP • CENTRAL







ARMSTRONG-BRAY **STEELGRIP** FLEXIBLE BELT LACING



Prompt Delivery. Best all around conveyor and power belt lacing because it can be applied with a hammer. Comes in handy packages or long lengths for conveyor belts. It compresses belt ends, prevents fraying. Comes with 2-piece hinged rocker pins. Write for Catalog showing the most complete line of belt lacing made.

Also Mfg. Wiregrip Hooks and Lacers.

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5386 Northwest Highway
Chicago, U. S. A.

In Cleveland HOTEL HOLLENDEN
In Columbus NEIL HOUSE
In Lancaster, O. THE LANCASTER
In Corning, N. Y. THE BARON STEUBEN
Check IN
THEO. DeWITT PRESIDENT
DeWITT OPERATED HOTELS

SAVE TIME — SAVE LABOR

Neff & Fry super concrete stave bins for the storage of sand and gravel save labor. Also time. They are strong, portable, quickly erected anywhere. Thousands in service. New 1943 catalog ready.

NEFF & FRY STORAGE BINS
THE NEFF & FRY CO., CAMDEN, OHIO

Advertise your wants and surplus equipment in

PIT AND QUARRY

TRY THIS!

And Prove for Yourself That BEMIS MULTI-WALL PAPER BAGS Have Extra Strength Needed For Wartime Storage and Shipping

Place two filled Bemis Multiwall Paper Shipping Bags so that they are supported only by their ends. Then continue to pile filled bags on top of them. (The stack will get pretty high before those Bemis Multiwalls give way!)

This unusual experiment will show you the extra toughness of Bemis Multiwalls which enables them to withstand the severe hardships of wartime handling.

Exacting quality control plus Bemis manufacturing methods maintain this extra strength factor in spite of wartime restrictions and raw material difficulties.

Take advantage of Bemis quality and service when you reorder. Samples will be sent for testing without obligation.

Photograph of actual test made at the Arthur Ruprecht Sand & Material Co., St. Louis, Mo.

BEMIS BRO. BAG CO.

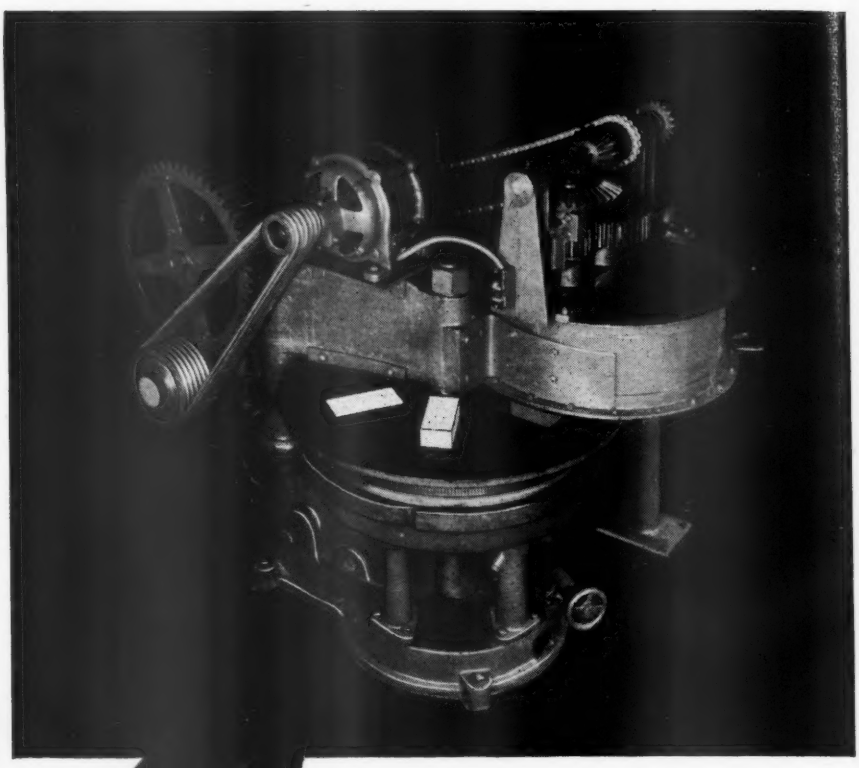
Peoria, Ill. • East Pepperell, Mass. • Mobile, Ala.
San Francisco, Calif. • Wilmington, Calif. • St. Helens, Oregon

Baltimore • Boston
Brooklyn • Buffalo
Charlotte • Chicago
Denver • Detroit
Houston • Kansas City
New York City • Oklahoma City • St. Louis • Salina • Seattle
Salt Lake City • Wichita
Indianapolis • Los Angeles • Louisville
Memphis • Minneapolis • New Orleans
Norfolk • Omaha

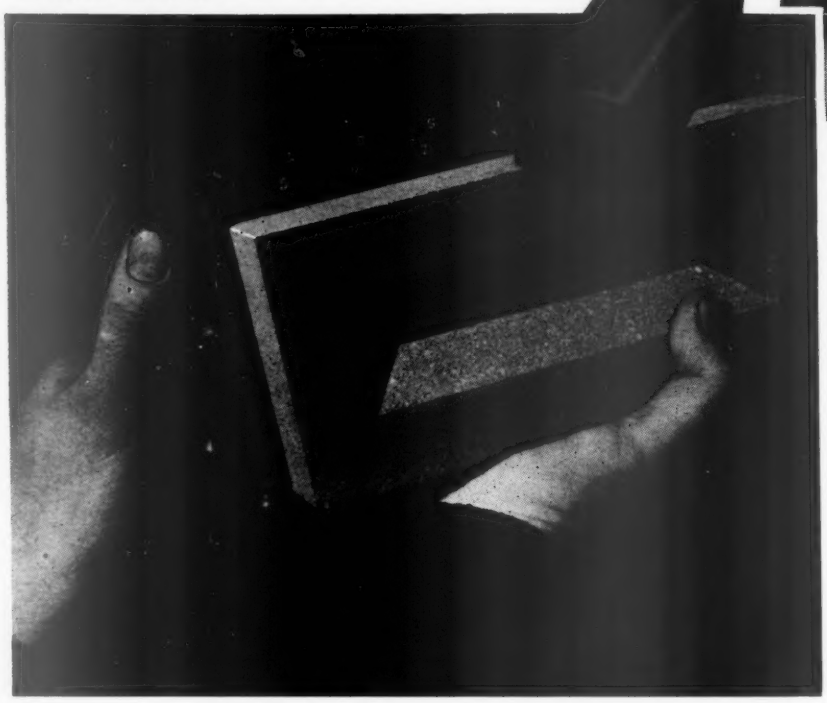
28,000 BRICKS IN ONE EIGHT HOUR SHIFT WITH THE J&C BRICK MACHINE

Smart operators find Jackson & Church units to be highly profitable installations. They eliminate the need for costly pallets. Gravel pit fines are ideal for brick making in a J & C press.

Below: Because of their even texture, sharp, square corners and perfect uniformity, Jackson-made bricks are winning the praise of contractors and architects from Maine to California.



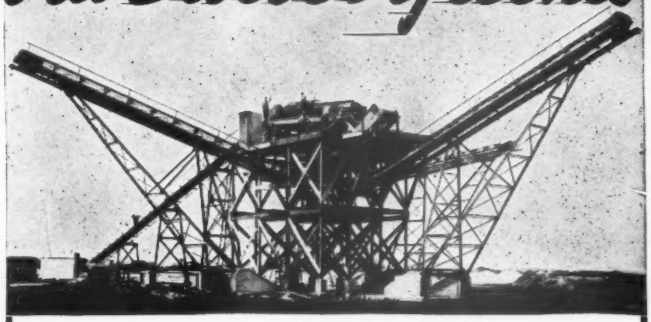
Either frog-type or solid concrete bricks can be produced at the rate of up to 14,000 in an eight hour day (on model C machine shown here) or up to 28,000 per day on the larger type A machine.



Above: The Jackson and Church plant shown above was constructed of J & C made bricks. Producers find that J & C made bricks are easier to sell because of their uniformity, quality and appearance. J & C units produce plain or colored bricks from Haydite, Waylite, Superock, Pottsco, cinders and other light weight aggregates. From a single sack of cement, with a J & C machine, up to 320 concrete bricks can be made, with strengths as high as 3700 pounds per square inch and absorption as low as 6%. For complete information write to Jackson and Church Co., Saginaw, Mich.

JACKSON AND CHURCH COMPLETE BRICK-MAKING PLANTS

Via Barber-Greenes



● Securing economical distribution and compact plant design, this Barber-Greene system of conveyors was worked out to screen into three sizes. Outstanding is the fact that the three B-G stockpiling conveyors are supported out of the pile by B-G steel A-frame supports, greatly aiding reclaimation operations.

● The reciprocating feeder, four belt conveyors, and A-frames are all B-G standard pre-engineered units, selected for this construction. Our engineers can help you with your material handling problems.

Q-26

BARBER GREENE
AURORA ILLINOIS

FASTEST POURING

Almost Any Job of Concrete Can be Done Faster with JAEGER TRUCK MIXERS

"HIGH DUMP"

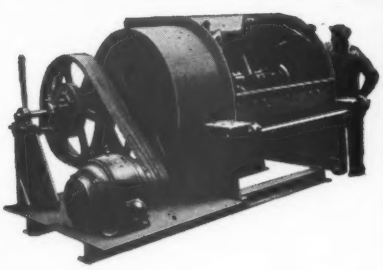
Millions of yards of Jaeger Truck-Mixed Concrete on major war work (exceeding the output of all other makes combined) prove the advantages of these motorized concrete plants. Nimble, flexible and fast, they speed placement, solve problem of extended or continuous pours.

THE JAEGER MACHINE CO.,
602 Dublin Avenue
Columbus, Ohio

Mixers—Pumps—Hoists
Paving Equipment

or "LOW CHARGE" Type

Thorough Low-Cost Mixing with MULTI-MIXER



MULTI-MIXERS are supplied in either motor drive or geared-head drive eliminating pulleys and clutches. Reverse screw-type mixing action insures better concrete. All are SKF ballbearing equipped, with double seal ring packing bearings, etc., to eliminate the entrance of dirt. Abrasive-resisting steel or chromium plated liners available. Capacities from 5 to 60 cubic feet. Ask us for the names of well-satisfied MULTI-MIXER users. *Write Today for Complete Information!*

MULTIPLEX Equipment Available

We are in position to give reasonably prompt service on all orders. However, we regret that we are unable to supply new equipment unless a priority rating high enough to permit us to re-supply ourselves with the necessary steel accompanies your order. If you will supply us with your priority rating when ordering, it will aid us materially in determining our ability to serve you.

Multiplex Concrete Machinery Company
ELMORE OHIO

CONCRETE aids war production—*factory and farm*

Concrete contractors and concrete products manufacturers are showing owners of food and war-industry plants where concrete improvements will help speed war production. Many, too, are helping farmers who need concrete improvements to increase their food production. And concrete is also speeding the completion of urgently needed war housing facilities—making them firesafe and weather resistant.

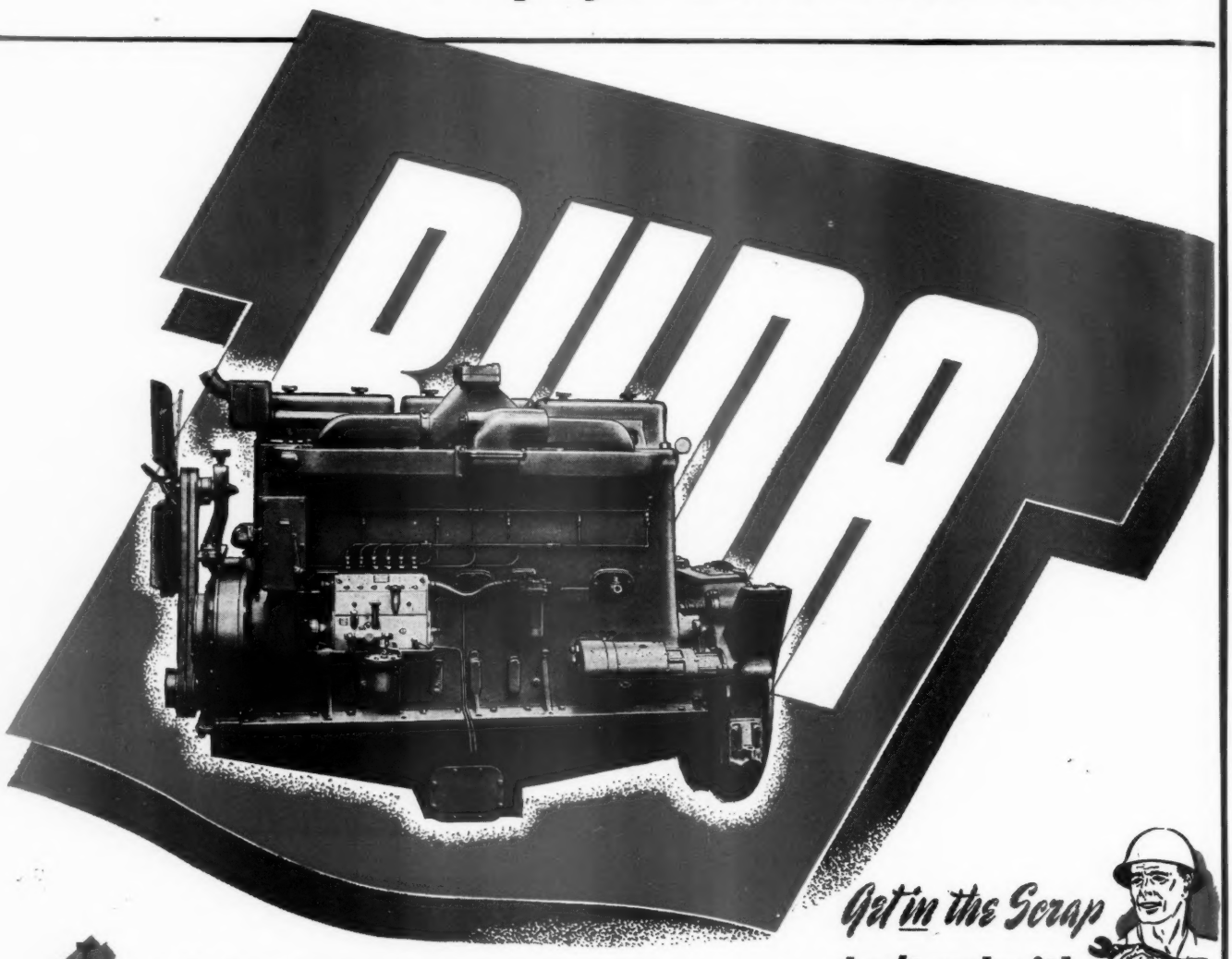
Concrete Offers These Vital Advantages

- *Concrete conserves transportation*—the bulk of concrete materials usually being found locally.
- *Concrete conserves critical materials.* Such materials are seldom needed in pavements, floors on grade and many other essential concrete jobs.
- *Concrete "has what it takes"* for war-industry buildings and repairs—strength, rigidity and firesafety combined with economy of first cost and maintenance.

PORTLAND CEMENT ASSOCIATION
Dept. A8-58, 33 W. Grand Ave., Chicago 10, Ill.

The CONCRETE MANUFACTURER

NOW PROPER ENGINE CARE ... pays more than ever!



IN the old days, if you wanted to neglect your engine —and lose half its useful life—it was *your* tough luck. The downtime for repairs, the added costs, were out of *your* pocket.

It's different today, Mister. If the job you're doing is vital to victory, Uncle Sam can't afford downtime for repairs—and he has better places for the material, labor and tools to make repair parts for engines ruined by neglect. So check over your engine; take good care of it—*regularly!* Your nearby Buda distributor can help you—see him *now!*

. . . don't make it!

Every engine part you save means one more for the battlefront. Take care of your engine *regularly*—check your instruction book for details on lubrication and service.

ORDINARY DIESELS

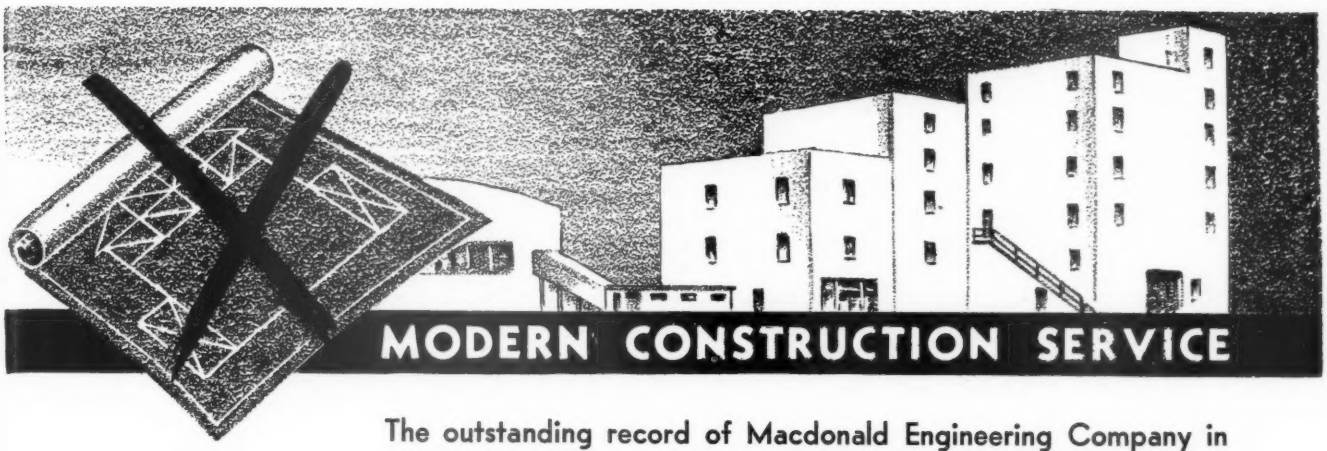
. . . High cylinder pressures produce sledge-hammer blows that punish pistons, rods and crankshaft every power stroke.

BUDA
Low-Pressure DIESELS

Prolonged "Low-pressure" combustion delivers a smooth, steady power stroke that cuts vibration, saves parts.

the BUDA Co.

HARVEY (Chicago Suburb) ILLINOIS



MODERN CONSTRUCTION SERVICE

Conversion FROM STEEL TO CONCRETE

The outstanding record of Macdonald Engineering Company in constructing the magnesium oxide plant for Basic Magnesium Inc. —a seven-million dollar government project at Gabbs, Nevada— is typical of the many successful operations in building production plants of all types for the nonmetallic-minerals industry.

Modern construction experience enables Macdonald Engineering Company to utilize available materials to the best advantage. In many cases, steel building designs may be converted to concrete structures, thus eliminating the use of critical materials and speeding the completion of the contract.

Your inquiries are solicited on engineering and construction problems.

MACDONALD ENGINEERING COMPANY
One North La Salle Street, Chicago, Illinois

ARMY E NAVY

● The coveted Army and Navy E Pennant awarded for excellence in production now floats proudly above the Wellman plant.

WILLIAMS *Buckets*

ARE BITING INTO FROZEN GROUND and TROPIC MUCK

● Williams Buckets are very much in active service in the wide-flung war offense. Concrete-hard, frozen ground is being broken by the sharp teeth of Williams Buckets in far north road building. Deep in jungles Wellman Buckets are digging and dredging. At ore mines, over stock piles and railway cars, and in steel mills Williams Buckets are literally moving mountains to help beat the Axis.

built by
THE **WELLMAN** ENGINEERING COMPANY
7014 Central Avenue • Cleveland, Ohio

You Get MORE Material through a DIAMOND VIBRATOR

You CAN'T Choke It!

Positive ALL-OVER Vibration

Accurate BALANCE (Adjustable to load)

Big capacity—fast action—thorough separation—freedom from trouble—those are the results you want in a vibrating screen. DIAMOND gives them to you—doubly sure. ¶ Proper placing of the eccentric gives all-over vibration—WITHOUT transmission to frame. Rubber mounted roller bearings and remarkable balance assure smooth, positive action. Note space between decks — it's a choke-proof screen! Raised center works material over ALL screen surface. Screen cutting is practically eliminated by the DIAMOND method of clamping. Write today for new Equipment Bulletin D-42-V.

Jaw Crushers—Roll Crushers—Hammermills—Screens

DIAMOND

Conveyors—Bins—Feeders—Portable and Stationary Plants

Ask for new Quarry Plant Bulletin D-43-A

DIAMOND IRON WORKS, INC.
ESTABLISHED 1880
AND THE MAHR MANUFACTURING CO. DIVISION

1801 SECOND ST. N., MINNEAPOLIS 11, MINN.

We've eliminated all the excess weight

to give you greater digability and bigger pay loads!

We've taken the weight out of the bucket itself, to let you put bigger loads *inside*. Here's how: Because the HENDRIX Lightweight is 20 to 40 per cent lighter than other buckets, type for type, you can use larger buckets on your machines than that for which they were designed. The same holds true for long boom operations . . . and in either case this can be done without exceeding the allowable loaded weight. In wet digging, you get bigger pay loads by leaving the water in the pit!

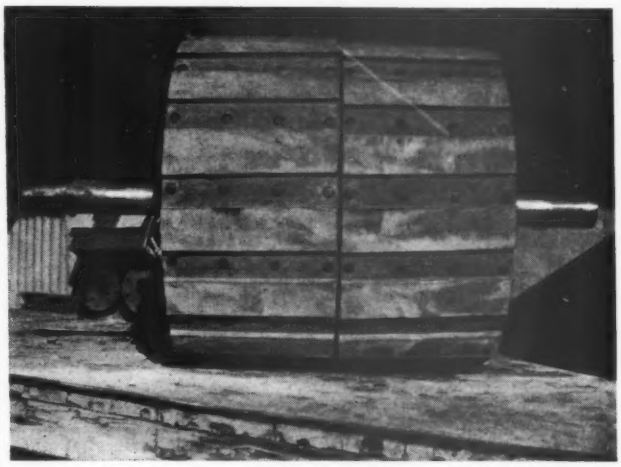
- 20 to 40 per cent lighter than other buckets, type for type.
- Manganese steel chains, fittings and reversible tooth points.
- Perfectly balanced . . . handles easier, fills faster . . . dumps quicker, cleaner.
- All welded construction . . . for greater strength and durability.
- Gets full load pay material every trip . . . even in wet digging.
- Available in three types—light, medium and heavy duty.

⅛ to 20 cubic yards

Write for descriptive literature . . .
or ask your dealer . . . today!

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

DESOTO FOUNDRY, INC. ★ MANSFIELD, LA.



Block Type Pulley Lagging

Prevents Slips Because It GRIPS!

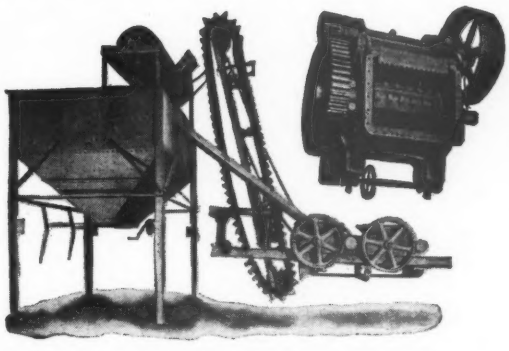
Most efficient where slippage might be due to snow, ice, and slimy materials, as evidenced by its popularity in Alaska. Heavy belts, heavily loaded, in any climate or for any materials, call for this Block Type Pulley Lagging.

The
AMERICAN RUBBER
Factory and General Offices: **Manufacturing Co.**
Park Avenue and Watts Street Oakland 8, California

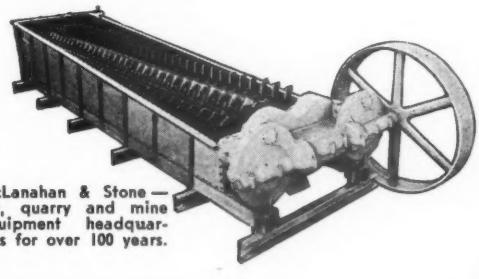
McLANAHAN

SCREENS · CRUSHERS

COMPLETE PLANTS



McLanahan equipment will prepare your plant for more business. Single and double roll and jaw crushers, hammermills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs and hoists—complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any material.



McLanahan & Stone—pit, quarry and mine equipment headquarters for over 100 years.

McLanahan & Stone Corp.

Established 1835
HOLLIDAYSBURG, PENNSYLVANIA

RANGE and POWER
in dredging Sand and Gravel

EAGLE

"Swintek" Screen Nozzle Ladder

with

PATENTED HEAD

Longer range and greater digging power—that's the general agreement among dredge operators who are outshooting competitors with the EAGLE "Swintek".

This dredging unit handles deep and refractory deposits that are inaccessible to plain suction machines.

It maintains a uniform flow of solids, and eliminates slug pumping. Increases capacity up to 400%, with marked savings in power, time and labor losses.

Clean aggregate—the basis of good concrete—is a premium material for rapidly expanding war and industrial purposes.

EAGLE pioneered the use of washers in the sand and gravel field, and offers a wide range of high-capacity, economical machines ready for superior service in any type of plant.

Request the Eagle "Swintek" Bulletin
Also Bulletin No. 41—Eagle Equipment

EAGLE IRON WORKS

Des Moines **Iowa**

HOW TO PROTECT *VALUABLE EQUIPMENT*

BERGSTROM Electrodes deposit a layer of extra-tough metal over points of heavy abrasion and corrosion. Thus they prevent premature wearing out of equipment. This saves valuable time and money.

These electrodes are easy to use. They can be applied in any position. Slag-free—chipping and brushing are eliminated. Six types—each designed to match a specific need for resistance to abrasion and corrosion.

FLEXALOY
—A tough, hard overlay—unusually ductile.

RANALLOY TYPE "C"
—Low priced—for ordinary wearing conditions.

RANALLOY TYPE "A"
—Medium priced. Deposits tough, hard overlay metal.

RANALLOY TYPE "B"
—Super hardness for extreme abrasion resistance.

SUPRALOY
—Ultra hard rod. For maintenance of an edge or sharp corner.

COROSOLOY
—Corrosion-resisting rod.

BERGSTROM *Free Flowing* HARD SURFACING ELECTRODES

Write us for further information

UNITED STATES STEEL SUPPLY COMPANY
USS STEELS SERVICE

UNITED STATES STEEL SUPPLY COMPANY

CHICAGO · BALTIMORE · BOSTON
CLEVELAND · MILWAUKEE · NEWARK, N. J.
PITTSBURGH · ST. LOUIS · TWIN CITY-*St. Paul*

UNITED STATES STEEL

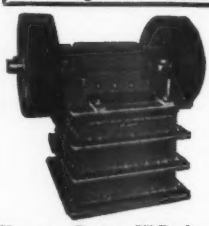
GRUENDLER CRAFTSMANSHIP

Employed by U. S. A. in the WAR EFFORT

★ ROCK CRUSHERS ★

STATIONARY or MOBILE for Military Highways, Access Roads, Army and Navy Air Base Construction

GRUENDLER ENGINEERS on the Job to help you in any way, NOW and for your post war plans—Blue Prints or Practical Suggestions Sent—No Obligations—Write for Illustrated Bulletins and Catalog "Number 601"



Heavy Duty HiCarbon cast steel Roller Bearing JAW CRUSHER

Built in many sizes

Cross Section View of Heavy Duty HAMMER CRUSHERS from 1 ton per hour to 500 tons per hour capacity.

GRUENDLER CRUSHER & PULVERIZER CO.
PLANT and MAIN OFFICE — 2915-17 N. MARKET · ST. LOUIS, MO.

GENERAL

SHOVELS and CRANES GIVE YOU MORE!

They Deserve Good Care

THE GENERAL EXCAVATOR CO.
MARION, OHIO

Looking for Used Equipment?

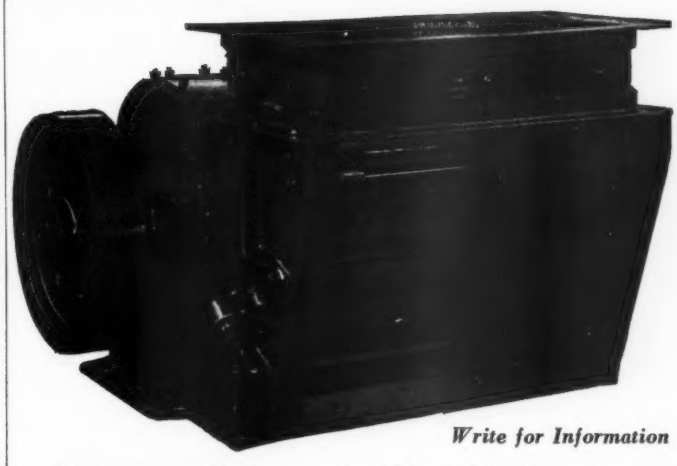
Refer to the listings in the Broadcast Section in this issue for a wide variety of used and surplus machinery and supplies.

SIMPLICITY GYRATING

SCREENS are operating 24 hours daily in many of the 1000 aggregate plants using them today. To assist in keeping these units operating with a minimum of lost time, the Simplicity Engineering Company has arranged with the C. A. P. for *Courier Service,* so that urgently needed parts can be quickly flown to their destination. Another example of providing the fastest service available.

Simplicity Engineering Co.
DURAND . . . . . MICHIGAN

This Machine Can Cut Your Crushing Costs 'Way Down



Write for Information

Keep war production moving without delay by relying on AMERICAN Crushers, known throughout the industry for their ruggedness, low power consumption, sterling dependability. Deliver 10 to 100 tons per hour with no "time-outs." Uniform and cubical product assured. The first choice of experienced operators.

AMERICAN PULVERIZER CO.
1059 Macklind Ave. St. Louis, Mo.

Flink Spreads Wet or Dry Lime Faster — at Lower Cost —

PAYS FOR ITSELF

"Both of my Flink spreaders paid for themselves within 60 days in labor costs and I made an extra $2000 with them my first season," said a lime spreading contractor who operates in northern Illinois. Many men who have purchased one Flink now own two or more. Write for literature. You'll easily see why.

The Flink spreader spreads material from stock pile, wet or dry as well as from the hopper. It spreads evenly and does not use centrifugal force. Strictly a one man outfit controlled by the truck driver. No helper needed on back of truck. Extremely rugged design. Spreads all granular materials, fine and coarse up to 28 ft. wide. Does not limit use of truck for other purposes. Time tested. Hundreds in use. Write for literature.

The **FLINK CO.** Streator Illinois

For particulars write our nearest representative:

Wico Sales
2924 N. Western Ave., Chicago

Wisconsin Oil & Equipment Co.
34 Park Ave., Oshkosh, Wisconsin

G. M. Clements
421 Townsend Ave., Columbus

Jeffrey heavy duty bucket elevator and belt conveyor installation in a large quarry operation where high productivity is important.

JEFFREY

Material Handling — a faster way of doing the job — a quicker way to move material and products. Specify Jeffrey and keep your plant modern and efficient.

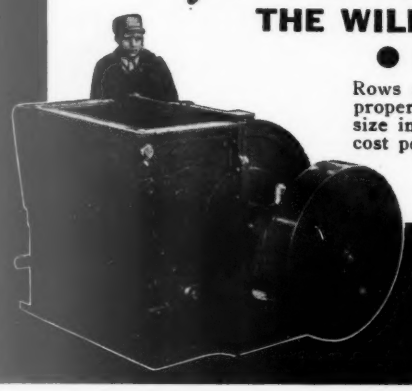
The Jeffrey Manufacturing Company
(Established in 1877)
935-99 North Fourth Street, Columbus 16, Ohio

Jeffrey portable bucket loader — ideal for pit to truck loading or reclaiming from storage. Also portable belt and scraper conveyors.

for Making 1¼", ¾" or Agricultural Limestone...

THE WILLIAMS "SLUGGER" CRUSHER AND PULVERIZER

● Handles Large Stone or Screen Rejects ●



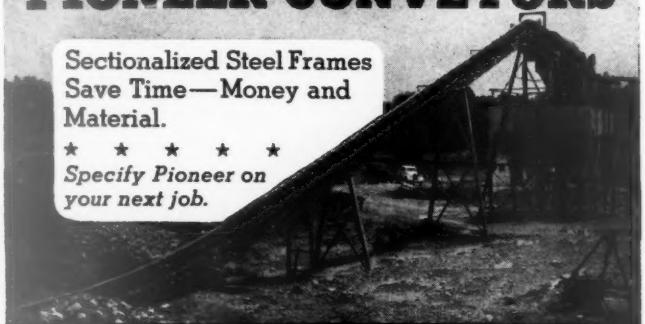
Rows of heavy, free swinging, fast revolving hammers, crush the material by impact until of proper size to pass through the grates. By reducing large rock to 1¼", ¾" or agricultural size in one operation, the "Slugger" has enabled operators to produce these sizes at a very low cost per ton and with small investment. Seven sizes—6 to 150 tons hourly capacity.

The Williams Patent Crusher and Pulverizer Co.
802 St. Louis Ave. St. Louis, Mo.

Williams
OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
PATENT CRUSHERS GRINDERS SHREDDERS

AIR SEPARATORS
ROLLER MILLS
CRUSHERS
GRINDERS
SHREDDERS

PIONEER CONVEYORS



Sectionalized Steel Frames Save Time—Money and Material.

★ ★ ★ ★ ★

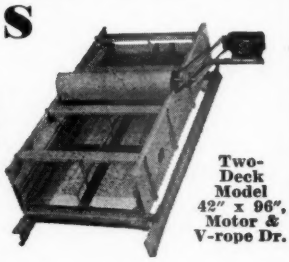
Specify Pioneer on your next job.

PIONEER ENGINEERING WORKS
1515 CENTRAL AVE. MINNEAPOLIS, MINNESOTA
Manufacturers of Quarry, Gravel Pit and Mining Machinery

UNIVERSAL SCREENS

Complete line of—

Tried, Proved and Guaranteed Vibrating Screens. Since 1919, the BEST in screening equipment at the LOWEST COST.



Two-Deck Model 42" x 96", Motor & V-rope Dr.

NEW! 32-page Catalog on Screens and Screening. Just ask for Catalog No. 107.

UNIVERSAL VIBRATING SCREEN CO.
RACINE ~ ~ WISCONSIN

DOUBLES
THE LIFE OF CONVEYOR BELTS!

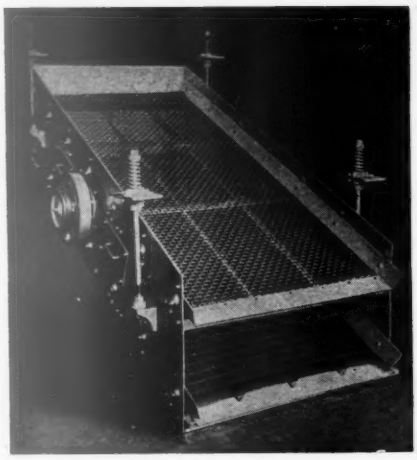
The most profitable investment in conveyor equipment! A pulley that saves at least 50% in conveyor belts! This exclusive Sprout-Waldron development prevents material from coming between the face of the pulley and the belt . . . eliminates the heavy friction wear and punching of holes. Interchangeable with standard pulleys. *Write for list of sizes available.*

SPROUT, WALDRON & CO., INC.
136 SHERMAN ST. MUNCY, PA.

ELEVATORS, CONVEYORS, POWER TRANSMISSION EQUIPMENT

ROUND
SQUARE
SQUAROUND*
HEXAGON
PERFORATED PLATE
of every description
for maximum productiveness from your vibrating screens.
*Reg. U. S. Pat. Off.

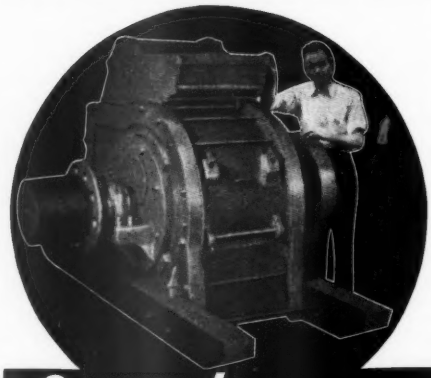
HENDRICK MANUFACTURING CO.
39 Dundaff Street, Carbondale, Pa.
Sales Offices in Principal Cities. Please Consult Telephone Directory.



DENVER-DILLON Vibrating Screen

The Denver-Dillon Vibrating Screen has been proved by over four years of service in numerous industries. Operators report definite reduction in screening costs. "Floating circle" principle requires less than half of the average power of other means of screening. Write today for new Bulletin No. S3-B3.

Denver Equipment Co.
1400 Seventeenth Street
Denver, Colorado
New York, N. Y., 50 Church St.
Salt Lake, Utah, McIntyre Bldg.
Chicago, Ill., 1005, 69 W. Wash
Toronto, Ont., 45 Richmond St.
Mexico, D. F., Edificio 'alisco



You can do more in a "DAY"

Swing Hammer PULVERIZER

Its wide crushing range makes it serve the purpose of two or more other types of crushers. Roller bearing equipped. Write for Bulletin.

Brooks EQUIPMENT & MFG. CO.
KNOXVILLE, TENNESSEE

THE EXECUTIVE WHO STOPS TO THINK . . .

Knows that "10% for War Bonds isn't enough these days"

Workers' Living Costs going up . . . and Income and Victory Tax now deducted at source for thousands of workers . . .

Check! You're perfectly right . . . but all these burdens are more than balanced by *much higher* FAMILY INCOMES *for most of your workers!*

Millions of new workers have entered the picture. Millions of women who never worked before. Millions of others who never began to earn what they are getting today!

A 10% Pay-Roll Allotment for War Bonds from the wages of the family bread-winner is one thing—*a 10% Pay-Roll Allotment from each of several workers in the same family is quite another matter!* Why, in many such cases, it could well be jacked up to 30%—50% or even more of the family's *new* money!

That's why the Treasury Department now urges you to revise your War Bond *thinking*—and your War Bond *selling*—on the basis of *family* incomes. The current War Bond campaign is built around the family unit—and labor-management sales programs should be revised accordingly.

For details get in touch with your local War Savings Staff which will supply you with all necessary material for the proper presentation of the new plan.

Last year's bonds got us started—*this year's bonds are to win!* So let's all raise our sights, and get going. If we all pull together, we'll put it over with a bang!

This space is a contribution to America's all-out war effort by

PIT AND QUARRY

you've done your bit
. . . now do your best!

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Immediate Shipment

GUARANTEED REBUILT EQUIPMENT

CRUSHERS - SCREENS

2′ Symons Coarse Bowl
15″ x 24″ Jaw Crusher
13″ x 48″ Jeffrey Spike Rolls
48″ x14″ Symons 2½ Deck Screen
54″ x 30′6″—Heavy Trommel Screen
42″ x 18′ Trommel Screen

QUARRY EQUIPMENT

7½ Ton Steel Guy Derrick
10 Ton Steel Guy Derrick
2 yd. Electric Shovel—Crane
272′ Sta. Air Compressor
360′ Portable Compressor
125 HP Double Drum Hoist

Also — Truck Scales — Conveyor Rolls — Belting

BROWN BEVIS EQUIPMENT CO.

4900 Santa Fe Ave. **Los Angeles Zone 11, Calif.**

CONCRETE MIXERS

28 4-yard Smith and Jaeger 1942 models; high discharge; separate engine drive; used only 6 months; also 1942 Dodge six wheelers with mixers mounted; and 1938 Mack and Autocar with mixers mounted; perfect rubber.

MOTOR TRUCK SALES AND EQUIPMENT COMPANY

Telephone: CALUMET 1255

2435 COTTAGE GROVE AVENUE **CHICAGO, ILLINOIS**

FOR SALE—REBUILT EQPT.

2—Duplicate AMERICAN 0-4-0 S.T. Steam Locomotives—42 tons, Cyl. 14″x22″, Tractive Power 17,410 lbs.
1—56 BALDWIN 0-6-0 Switcher Locomotive, Separate Tender, Cyl. 19″x24″, Tractive Power 26,000 lbs.
1—8 Ton Standard Ga. VULCAN Gasoline Locomotive, Hand Brakes.
2—PLYMOUTH Model FL, 4 Ton, 24″ Gauge Gasoline Locomotives.
1—WHITCOMB Model CS-4, 4½ Ton, 24″ Gauge, Gasoline Locomotive.
1—C. H. & E. No. 11, Triplex Road Pump.
1—FORDSON Tractor — Pneumatic Tires.
1—30 H.P.—"J-B" Feed Mill.

Other Types of Equipment, Too
We are also manufacturers of Carry-all trailers, 10 to 40 Ton Cap'y.

SOUTHERN IRON & EQUIPMENT COMPANY
Plant & General Offices:
ATLANTA, GEORGIA

FOR SALE

20 ton Link Belt 8 wheel locomotive crane, ASME boiler, 50′ boom, double drums.

P&H 600 crawler gas combination shovel, crane and dragline, 1 yard. 10 ton Buffalo-Springfield 3 wheel gas road roller.

P&H 400 shovel attachment, ¾ yard. Northwest ¾ yard shovel attachment for Model 104 or 105.

Above overhauled by our men; first class condition.

THE ACME EQUIPMENT COMPANY
14057 Schaefer Highway
Detroit 27, Michigan

Gyratory Crushers; Allis Chalmers, Kennedy, Telsmith, Austin and others.
Jaw Crushers; Buchanan 12x36, Type B, Good Roads 22x50″ Plain bearings.
24″ x 100′ Belt Conveyor, 440 volt MD.
Bucket Loaders, Barber Greene, Haiss, Nelson.
½ yd. P&H Model 300 Crawler Gas Shovel.
¾ yd. P&H Dragline 40′ boom, ¾ yd. Bkt.
1 Yard Northwest Dragline 45′ Boom 1 yd. Bkt.
3′ x 52′ Rotary Dryer, oil burner & Fan.
4′9″ x 60′ x 6′ x 60′ Dryers ½″ plate.
4-8 Ton 24 x 36″, Ga Gas Locomotives.
100 HP Fairbanks Morse Diesel Engine.
180 HP Fairbanks Morse VA Full Diesel.
125 HP Venn Severin Diesel, Factory Rebuilt.
What do you need? What have you for sale?

MID-CONTINENT EQUIPMENT COMPANY
Pa 2290 710 Eastgate St. Louis, Mo.

SELL NOW — PRICES HIGH!!!

16, 20, 24 or 30 cubic yard
AIR DUMP CARS
Any quantity, type, make or location.
Also 10 to 100-ton Gas or Diesel Locos.
IRON & STEEL PRODUCTS, INC.
38 years' experience
13490 S. Brainard Ave., Chicago 33, Illinois
"ANYTHING containing IRON or STEEL"

FOR SALE

18″ x 36″ Stevenson Single Roll Crusher.
9″ x 36″ Wheeling Jaw Crusher.
9″ x 15″ Phillips Jaw Crusher.
#4 Champion Jaw Crusher.
#1 Williams Hammermill Crusher.

PITTSBURGH MACHINERY & EQUIPMENT CO.
Aspinwall Pennsylvania

4 OFFICES and PLANTS
CHICAGO 11555 S. Washtenaw Ave. | NEW YORK 30 Church St., Dept. ENR
PITTSBURGH P. O. Box #933, Dept. ENR | PHILADELPHIA 1503 Race St.

EQUIPMENT CORPORATION of AMERICA

WE SERVE 4 WAYS
BUY | REBUILD
SELL | RENT
4

IMMEDIATELY AVAILABLE

1—Northwest Crane Model 105.
1—1 yd. Williams Clamshell Rehandling Bucket.
1—24"x150' Belt Conveyor with Belt & Motor.
1—7-10 ton Stiff Leg Derrick & 3 Drum Byers Hoist with Swinger.
1—118 ton, 2 compartment Blaw-Knox Steel Bin.
1—24x36 P.B. Jaw Crusher.
1—Portable Pioneer Dry Screen Plant, Model No. 12.
1—Semi Portable Cedar Rapids Washing Plant.
1—3x10 Symons DD Vibrating Screen.
1—4x8 Allis Chalmers 3 Deck Vibrating Screen.
1—Universal Model 35, ⅝ yard Shovel and Trench Hoe.
1—⅜ Yard Universal - Fordson, ¾ Swing Crawler Shovel.
1—Model GA-2 Bucyrus-Erie Gas-Air Shovel and Crane.
1—32 ft. Crane Boom, Channel Type.
1—No. 2 Northwest Shovel Front.
1—½ yard Clamshell Bucket with Teeth.
1—¾ Yard Shovel Bucket.
1—1 Yard Sauerman DD Hoist, 50 H.P. Motor, Beaumont Drag Scraper.
1—P&H Trencher, Model 15-36.
1—10 ton, 3 wheel Galion Roller.
1—1½ to 2 ton Pierce Tandem Roller.
1—30 ft. Type "C" Lakewood Concrete Finishing Machine.
1—Cummer 1500 lb. Pug Mill. Twin Shaft-Extra new Shafts.
1—48"x8'6" Revolving Screen.
1—2500 Gal. Asphalt Melting Kettle, oil burning type, no burner.
1—F&E Check Writer.
125 ft. 3" Steam Jacketed Asphalt Pipe.

PATTERSON EQUIPMENT CO.
1468 West 9th St. Cleveland, Ohio
Phone—Cherry 0439

3—Whitcomb Locomotives—Gas—12 ton—36" Gauge—Rebuilt.
20 ton Ohio Loco-Crane—50 ft. boom.
Hayward 2 yd. Orange-Peel Bucket.
¾ yd. Model 400 P & H Shovel.
1 yd. Link Belt K-30 Shovel.
1 yd. Northwest 105 Shovel-Crane.
10 ton Buf.-Spr. Roller, Gas, 3 Wh.
8 ton Buf.-Spr. Roller, Gas, 3 Wh.
3 to 4 ton Buf.-Spr. Roller, Gas, T.
1½ to 2 ton Pierce Roller, Tandem.
24x13 Farrel-Bacon Crusher.
Eimco Tunnel Shovels, 12-B and 20.
5—Electric Hoists, 40, 50 and 60 HP.
McK.-T. Pile Hammers, 3, 5, 6, 7.
Adnun Black Top Finisher.
50 HP Locomotive Boiler, Nat. Bd.
Barnes and LaBour self-pr. Pumps, 4".
Thor and Ing-Rand Air Pumps.
Gard-D. Compressor, 630' A.A. Elec., Dr.
2—Ing.-Rand 110' Compressors.
22—Busters, Spades, Jackhammers, Sheeting Hammers.
1 yd. Round Shaft Buckets.
1 yd. and ½ yd. Dump Buckets.
Pullshovel and Skimmer Attach. for ½ yd. P. & H.
2—Shovel Attach. for Byers Bearcat Jr.
Shovel Attachment for 41-B Bucy.-Erie.

•

J. T. WALSH
Brisbane Building Buffalo 3, N. Y.

We own and offer

New & Used Equipment

SPECIAL

1—ROTARY CONVERTER — Westinghouse, 1000 KW, Serial No. 1930945, 250 volts D.C., complete with panelboard
1—TRANSFORMER — Westinghouse, 1100 K.V.A., Serial No. 463866, 3 phases
1—TURBINE—Westinghouse, 100 HP, 2700 RPM, direct connected to Westinghouse reducing gear, ratio 3 to 1
1—ANDERSON 150 HP DIESEL UNIT—with Westinghouse Generator complete with all auxiliaries. Late model. Fine condition

AGITATORS

23—For 12' x 12' Tanks

AIR COMPRESSOR

1—COMPRESSOR — Ingersoll-Rand, Type XB, cylinders, 11" x 14", capacity 582 cu. ft., driven by 104 HP Motor, complete with Harris system vacuum and pressure tank control and receiver tank, 3'6" x 7'

BLOWERS & FANS

2—FANS—60" Sturtevant
1—BLOWER—Clarage No. 50
1—FAN—Clarage, Type SP, 60"
2—FANS—Raymond Mfg. Co., Size No. 11

BUILDINGS — STEEL

1—80' x 120' x 20', Steel
1—45' x 220', Steel Structure
ETC.

DERRICK & CRANE

1—DERRICK—Steel Guy Derrick, 110' Mast, 90' Boom, equipped with Clyde three-drum hoist, General Electric 84 HP, 230 Volt D.C. totally enclosed motor
1—JIB CRANE—Brownhoist, No. 5991, 45' arm, capacity 4500 lbs.

DRYER — ROTARY

1—3½ x 44 ft.

KILNS & COOLERS

Various dimensions

ELEVATORS & CONVEYORS

2—ELEVATORS—48" x 18" x 60', steel case, buckets 14" x 6" x 11"
1—ELEVATOR—48" x 18" x 28', steel case, buckets 14" x 6" x 11"
1—ELEVATOR—48" x 18" x 30', steel case, buckets 14" x 6" x 11"
1—ELEVATOR—48" x 15" x 22', steel case, 6" x 7" x 9" buckets
1—ELEVATOR—48" x 15" x 30', steel case, 6" x 7" x 9" buckets
2—ELEVATORS—42" x 16" x 75', steel casing, 9" x 9" x 7"
1—BUCKET ELEVATOR—36" x 12" x 40', steel case, bucket 6" x 8" x 10"
1—BUCKET ELEVATOR—18" x 45" x 50', steel case, buckets 14" x 6" x 11"
1—DRAG PAN CONVEYOR—pan, 14" x 10" x 8", complete with 12" pitch, head and tail sprockets and gear speed reduction. 35 feet long
6—SCREW CONVEYORS—12" x 300' long, steel case
1—SCREW CONVEYOR—8" x 12', steel case

ELEVATORS & CONVEYORS—Cont.

1—SCREW CONVEYOR—12" x 35', steel case
1—SCREW CONVEYOR—12" x 160', steel case
2—SCREW CONVEYORS—12" x 110', no casing
1—SCREW CONVEYOR—12" x 30', steel casing
1—SCREW CONVEYOR—12" x 60', steel case
1—SCREW CONVEYOR—12" x 35', wood case
3—BELT CONVEYORS—30' long, 24" wide, bag carrier type

FEEDERS

2—Baily Feeders, Type No. 2, complete with steel hoppers, 8½ dia. x 12 ft. cone bottom, 12" screw conveyor, enclosed, 30' long bucket elevator, 36 x 12 x 25, steel housing
2—FEEDERS, Ferris Wheel Type, 4'6" wheel, 7 x 8 x 10 in. buckets, steel case

FLOATING EQUIPMENT

1—DREDGE — Manufactured by the American Steel Dredge Co., 64' x 30' x 6', Steel Hull complete with all auxiliaries ready to operate, locomotive type boiler—Union Steam Company Pump, Pyle National Company Generator, Hoist-Compound Engine 8" x 10" Cylinders, 2—28" x 15" Chain Drums, Bull Gear, Pinion and Brake for each drum, 200 ft. ¾" Chain on Drums, 100 ft. ¾" Chain spare, 2—8" x 15" Nigger Heads "Service Work," Spuds—1 each side Rack 30' long, 3" pitch, 7" face, 30" section of rack, separate steam engine for each spud, compound engine, 5" x 8" cylinders, gear to counter-shaft, worm gear to spud pinion, worm gear 30", pinion 6", boom 60' long, 11" x 12" box type, bucket 1¼ yd. Hayward.
1—TUG—Manufactured by the American Steel Dredge Co., 40' x 13' x 6', ¼" Steel Plate Hull, Boiler and Engine
3—SCOWS—Steel Construction, 58' x 16' x 6', built by Johnson Bros.
1—MACHINE BOAT—Johnson Bros., 54' x 17' x 6'6", complete with dump hopper, cutter, scraper, elevator and loader. Driven by compound steam engine.

GRINDING EQUIPMENT

1—CLAY MILL—American Clay Machinery Company, Dry Pan, 9' diameter, with 2—48" x 10" grinding stones, cast iron construction
1—PUG MILL—15" diameter x 8½' with beaters
3—TUBE MILLS—5½ x 20 ft. F. L. Smidth Co.
3—TUBE MILLS—5' x 20', F. L. Smidth Co.
1—TUBE MILL—5 x 22 ft. F. L. Smidth Co.
3—KOMINUTERS—No. 66 F. L. Smidth Co.
1—RAYMOND MILL—4-roll
1—RAYMOND MILL—5-roll

SCREENS

4—SCREENS—4' x 5', W. S. Tyler Co. Hummer Screens, complete with generator
2—ROTARY SCREENS—18" x 8'

TRUCK SCALE

1—SCALE—Howe Truck Scale, capacity 40,000 lbs., platform 9' x 20', with Pilse ticket marker

WEBBER EQUIPMENT CO.
New and Used Equipment
17 East 45th Street New York City
MU. 2-6511

FOR SALE

TUBE MILL, 5½ x 20, TYPE B, SMIDTH, WITH OR WITHOUT 150 H. P. DC MOTOR.

•

EAST TENNESSEE IRON & METAL COMPANY
799 Western Avenue
Knoxville, Tennessee

EQUIPMENT FOR SALE

8—1½ yd. Jaeger Truck Mixers
1—3 Cu. Yd. air dump Smith Tilter Mixer
1—Neptune 2" special tridead auto stop Water Meter
3—L18 Blaw-Knox Clamshell Gates
6—2 yd. Jaeger High Discharge Truck Mixers

Practically new Butler Bin Co. Equipment:
1—150 cu. yd. 3 compartment Batch Bin
1—3 cu. yd. 4 beam Weigh Batcher
1—128 bbl. auxiliary bin which hangs on above bin
1—No. 5 Bucket Elevator 76 ft. high complete with track screw 22 ft. long and gear head motor to operate both.

COLONIAL SUPPLY COMPANY
Thirteenth and Wilson Streets
Louisville, Kentucky

—STACKER—

FOR HIGH STOCK PILING OR SPOIL

165' boom—5 ton aluminum car (counter balanced).
250 HP Hoist Motor.
All electric with cab control. Caterpillar mounted with individual travel and steer motors.
Ideal for disposing of material from short-boom shovel.

Address inquiries to—

HUNTSVILLE-SINCLAIR MINING CO.
114 W. 11th St. **Kansas City 6, Missouri**

CRUSHERS, ROLLS, MILLS

Robins 24" x 30" double roll coal crusher
Stevenson 24" x 39" single roll crusher
Simplex Unit Coal Pulverizer, type 33A
Single roll crusher with knobs, 24" x 24"
American Standard double roll crusher, 36" x 30"
Corrugated double crushing rolls, 16" x 16"
Sturtevant No. 0 Rotary Fine Crusher
Williams No. 2 "Semi Vulcanite" hammer mill
Williams No. 2 "Regular" hammer mill
New England Jaw crusher, 11" x 20"
Climax jaw crusher, 8" x 14"
Acme jaw crusher, 24" x 36"
Traylor 11" gyratory "Bulldog" crusher.

SCREENS, SANDTANKS

Revolving screens, 3' x 8', 4' x 16', 5' x 20'
Hummer vibrating screens and generators
Two "Jigger" three deck 2' x 5' vibrating screens
Plat-O two deck 4' x 6' vibrating screen
Two Telsmith No. 7 complete sand tanks, Tilding type.

BUCKET ELEVATORS

46' cont. belt elevator, 18" buckets
50' centrifugal chain elevator, 16" buckets
50' centrifugal chain elevator, 20" buckets
40' centrifugal chain elevator, 12" buckets
Two 35' centrifugal chain elevator, 10" buckets
1500' 6 ply 20" punched elevator belt
Gears, sprocket, elevator and driving chain
New K2 and couplings for C102½ and C188 chain

BELT CONVEYORS

370' of 30" trough belt conveyors
Two 100' 36" trough belt conveyors
100' of 16" trough belt conveyors
370' of 14" trough belt conveyors
65 Robins No. 105 42" trough idlers
100 roller bearings 38" return idlers
Trough idlers and pulleys for 14" to 36" conveyors
86' new 54" conveyor belt, 5-7 ply, 3/16" top
1000' of 30" 6 ply used conveyor belt, 1/8" top
360' used 42" 7 ply conveyor belt
Cast and steel driving pulleys
4 Robbins 14" automatic belt trippers

MISCELLANEOUS

30" 1½ ton Mercury battery mine locomotive
Two electric car pullers
One electric cargo winch
Flat cars for 20" and 24" gauge.
Centrifugal pumps, motors and generators
Revolving dryer, 4' x 21' 18" flue
Dings Magnetic Pulley, 12" dia. 14" face
Worm drive speed reducer, 75-1, 50-1, 40-1.
8 ton 36" gauge gasoline locomotive
10 ton standard gauge Davenport gasoline locomotive
Easton V dump car, 36" gauge, 2 yard, end dump.

G. A. UNVERZAGT & SONS
136 Coit Street, Irvington, N. J.

SHOVELS—CRANES

Lima Model 101 comb. Shovel-Crane. Excellent.
P & H Model 600 Shovel, 1 yard capacity
Bucyrus Erie Model 50B, 2 yd. comb. Shovel-Crane
Bucyrus Erie Model 1030 Electric Tunnel Shovel
Moore Speedcrane 15 tons, gas
Osgood heavy duty gas Shovel, 1 yard
Marion Model 460 Electric Shovel, 1½ yard
Marion Model 32, 1½ yard Steam Shovel
Byers ½ revolving Crane, Shovel & Backhoe.
Ind. Brownhoist 10 ton cap. Crane, gas, 40' bm.
Brownhoist 5-7½ ton Gas Crane, 30' boom
Koehring Shovel Front, ¾ yard
Osgood Shovel Front, 1 yard

SPECIALS!!

Complete Ready-Mix Concrete Plant
2—Steel Stiff-leg Derricks, 10 tons, 100' bm.
Allis-Chalmers cent. pump, electric, 3500 GPM. 50'
Worthington 8" cent. bronze impeller, elec. Pump
Butler 16 cu. ft. Asphalt Pug Mill

BUCKETS—STONE SKIPS

2 yd. Hayward Clamshell, rehandling
1½ yd. Williams Clamshell, rehandling
⅝ yd. Williams Clamshell, digging
2—½ yard Haiss Clamshell, rehandling
¾ yd. Haiss Clamshell, rehandling
Erie ¾ yd. Clamshell, rehandling
Owen Stone Grapple

TRACTORS—BULLDOZERS

TD 40 Diesel Tractor with bulldozer
Allis Chal. Model LO Tractor with bulldozer
RD6 Tractor with bulldozer
Allis Chalmers K Tractor with Baker bulldozer
Allis Chalmers L Tractor with Baker bulldozer
Cleetrac Model FG Tractor with Garwood bulldozer

COMPRESSORS

I.R. belted 900 cu. ft., 600 cu. ft., 528 cu. ft. Portable 310 cu.; Sullivan 1214 cu. ft., 1050 cu. ft. Diesel, 455 cu. ft.; Worthington 800 cu. ft.; I.R. 315 cu. ft., 2 stage, gas, Portable

CRUSHERS—CRUSHER PLANTS

Gyratory Crushers: K.V.S. 30, 37-S, 49; Traylor 8"; McCully 13", 8", 6"
Jaw: 10x22, 10x24, 11x18, 12x24", 14x24", 16x32, 15x36", 24x36", 56x84"
Complete Rock Crushing Sand & Gravel Plants

LOCOMOTIVES—CARS

American 60 ton, steam, std. ga.
American 50 ton, steam, Saddle Tank
Vulcan 16 ton, 36" gauge, gas
Porter 13 ton, Steam Saddle Tank, 36" gauge
Milwaukee 9 ton, std. gauge, gas
Vulcan 8 ton, std. gauge, gas
Vulcan 6 ton, 36" gauge, gas
20—Phoenix 5 yd. heavy duty, 36" ga. Quarry Dump Cars
21—Koppel 4 yd., 36" gauge Dump Cars
3—30 ton Standard Gauge Flat Cars, rebuilt

RICHARD P. WALSH COMPANY
30 Church St. **New York, N. Y.**

CEMENT MILL EQUIPMENT

Mills, Crushers, Kilns, Dryers, Steel Balls, Hoists, Boiler Plant, Air Compressors and Dust Collecting Systems.

Complete Stock Room Supplies, New Gears, Bearings, Belting, Safety Switches, Pumps, Shafting and Pulleys.

Thousands of Feet of Conduit ¾" to 3".

New Spare Parts.

• BUCKET ELEVATORS

Thousands of feet of bucket elevators, all sizes of buckets, mostly all steel encased.

BUCKETS

Using 844 chain, 103 chain, 132 chain and SS40 chain.

New Buckets and Gears.

• CONVEYORS

STEEL SCREW

6"-7½"-8"-10"-12"-14"-16"-18" and 20" in Steel Box—Over 10,000 ft. all lengths.

RUBBER BELT

4"-16"-18"-20"-24" and 28" centers varying from 30' to 203', some with movable trippers.

STEEL BINS

Steel Plate Storage Bins That Can Be Reassembled — Order at Once.
58 Bins in Various Capacities and Sizes

Cu. Ft.	*Dimensions*
35,184	18'4"x70'x27'5" high
19,592	11'3"x40'6"x43' high
10,440	12'x58'x15' high
9,270	12'x51'6"x15' high
7,460	10'x55'3"x13'6" high
6,827	12'8"x44'x12'3" high

Also Various Bins as follows:
4—1,650 cu. ft. and under
4—1,116 cu. ft. and under
5— 896 cu. ft. and under
6— 640 cu. ft. and under
7— 532 cu. ft. and under
12— 370 cu. ft. and under
11— 288 cu. ft. and under
2— 95 cu. ft. and under
1— 37 cu. ft.

Address all inquiries to Plant Office P. O. Box 188, Easton, Pa.

HEAT and POWER Company, Inc.
45 BOND STREET Algonquin 4-3874 **NEW YORK 12, N. Y.**

SPECIAL

1—Austin Machinery Corporation gasoline powered crawler crane. No. T 10054, complete with shovel front and 31′ crane boom. Powered by 4 cylinder Climax gasoline engine. Crane ¾ yd. capacity, fully revolving, mounted on caterpillars.

AIR COMPRESSORS (Portable)

4—310 cu. ft. portable air compressors Ingersoll-Rand and Gardner Dever, all gasoline powered on four steel wheels.
1—210 cu. ft. Worthington two-stage portable compressors No. 5513, power 75 horsepower, Hercules gasoline engine, mounted on four steel wheels.
3—220 cu. ft. Chicago Pneumatic single stage portable air compressors, gasoline powered on four steel wheels.
1—180 cu. ft. Barnes single stage portable air compressors, gasoline powered on four steel wheels.
2—160 cu. ft. two stage portable compressors, Schram & Worthington gasoline powered, mounted on four steel wheels.
1—160 cu. ft. Ingersoll-Rand single stage, portable gasoline powered, mounted on four hard rubber tired wheels.
1—110 cu. ft. Ingersoll-Rand single stage, gasoline powered, mounted on four steel wheels.
1—105 cu. ft. Chicago Pneumatic two-stage, gasoline powered, mounted on four steels wheels.
Also a large number of electric, stationary compressors from 25 to 1190 cu. ft., displacement.

You can't afford to stand around watching the calendar. Get what you want when you want it, from E.C.A., REBUILT and RE-GUARANTEED.

CRUSHERS

1—No. 4 Champion jaw crusher, size 9x15″, Ser. No. 2606.
1—No. 2 Climax jaw crusher, size 9x 16″.
1—Buchanan jaw crusher, size 10x16″.
1—Acme jaw crusher, Ser. No. 1873, size 12x20″.
1—Acme jaw crusher, Ser. No. 1686, size 9x16″.
1—United Iron Works, "Blake-type" jaw crusher, size 9½x24″.
1—Allis Chalmers, No. 5 gyratory crusher, Ser. No. 5331, opening 10x 38″.
1—Austin No. 5 gyratory crusher, Ser. No. 2945, opening 12x35½″.

DRILL STEEL

200 pcs. 1¼″ round, from 2′ to 24′; with threaded ends for bits;
200 pcs. 1¼″ round, with formed 2″ bit, winch can be threaded;
50 pcs. 1⅛″ hexagon from 2′ to 12′, threaded for bits;
40 pcs. 1″ hexagon from 2′ to 8′, threaded for bits;
2000 new 4-point Timken bits, for 1″ rod.

DERRICKS

3 — Steel Guy Derricks; 1 — 20-ton American-Terry 90′ mast, 110′ boom; 1—5-ton Terry Guy derrick, 70′ mast, 60′ boom; 1—5-ton Insley, 75′ mast, 80′ boom; Stiff leg derricks; 1—12 ton derrick, 75′ boom for hook work; 1—2-ton Pittsburgh, 26′ boom, 15′ mast. Also a number of wood stiff leg derricks, 1 to 5 ton cap.

HOISTS (ELEC., GAS, STEAM)

55—Electric ranging from 20 HP up to 125 HP, consisting of triple-drum, double-drum and single-drum, with AC or DC motors, some with attached swingers. Following makes: American, Clyde, Lambert, Lidgerwood and National.
Gas hoists ranging from 8 to 120 HP, single, double and triple-drums; all standard makes. (38 in stock.)

We Buy — Rebuild — Sell and Rent • Hundreds of Other Items • Get List

CHICAGO	PHILADELPHIA
1160 S. Washtenaw Ave.	1513 Race St.
PITTSBURGH	**NEW YORK**
P. O. Box 933 Dept. PQ	30 Church St. Dept. PQ

EQUIPMENT CORPORATION OF AMERICA

1—600 cu. ft. Ingersoll-Rand 2 stage Air Compressor Belt driven by 104 H.P., 3 phase, 220/440 volt, 60 cycle Motor with Air Receiver, Piping and Valves.
1—25 ton Steel Derrick; 85 ft. Boom; Guy lines, blocks, fittings, etc.

ARTHUR D. SAMLER, INC.
219 W. Pratt Street
Baltimore 1, Md.

FOR SALE

Complete **PORTABLE WASHING AND SCREENING AND CRUSHING GRAVEL PLANT**
75 tons per hour, consisting of
One—double deck 3x10 Lippman Vibrating Washing screen
One—single deck 4x8 Smith Engineering Vibrating Scaliping Screen
One—12x36 Lippman Jaw Crusher
Three—Complete steel sectional 24″ Belt Conveyors
One—steel, paddle type, Sand Drag Tank
One—two stage 3x4 Centrifugal Water Pump
1100 ft. 5″ Wrought Iron Pipe
One—Plate Feeder and Steel Hopper for 24″ belt

Plant now operating. Available soon. All equipment less than 2 years old.

Location, Middle West—Northwest of Chicago.

Box 816
PIT & QUARRY PUBLICATION
538 S. Clark Street, Chicago 5, Ill.

FOR SALE

NEW AND USED STEEL

Structural
Plates
Sheets

Storage Tanks

Rails — Cars — Locomotives

HYMAN-MICHAELS CO.
122 S. Michigan Avenue
Chicago, Ill.

NOW IS THE TIME FOR GREATEST EFFORT!

DIRECT HEAT ROTARY DRYERS

2—4′x30′ Ruggles-Coles, now at Rochester, N. Y.
1—5′6″x24′ Iroquois, made by Lancaster Iron Works. At Newark, N. J.
1—5′x30′ Cummer. Now at Newark, N. J.
2—6′x50′ Traylor Eng. & Mfg. Co.
2—5′x40′ Ruggles-Coles, single shell. Now at Boston.

ROTARY KILNS

1—7′x120′ Vulcan, excellent condition, complete, out of service two weeks.
2—8′x125′ Vulcan Iron Works.
1—7′ & 8′x80′ Traylor.
4—5′6″x7′x80′ Vulcan and Reeves.
1—5′x50′ Vulcan.

CRUSHING ROLLS

1—20″x14″ Sturtevant, full balanced type.
1—Set 36″x16″ Sturtevant.
2—40″x16″ Colorado Iron Works
1—42″x16″ Allis-Chalmers

SHOVELS, CRANES & DRAGLINES

4— 50-B Bucyrus comb.
1—225-B Bucyrus.
1—200-B Bucyrus.

VIBRATING SCREENS

9—Tyler Hummers; 3x5′ and 4x5′, 1 and 2 deck.
1—23″x59″ Link-Belt type NP-125 with motor.

HARDINGE CONICAL BALL MILLS

2—UNUSED 10′ dia. x 48″, iron lined, 24″ water-cooled bearings, 25 tons steel balls for each mill. Lenix idler for flat belt drive.
1—4′6″x16″, iron lined, with A.C. motor and silent chain drive.
1—5′x22″ iron lined, with silent chain drive, with or without motor.

BALL AND TUBE MILLS

1—UNUSED 7′ x 23′9″ Tube Mill, iron lined, including 400 H.P., 3/60/2200 volt slip ring motor and starting equipment.
1—5′x20′ Bonnot Tube Mill, silex lined, cast steel heads, for direct gear drive.

AIR COMPRESSORS

1—12x10″ Ingersoll-Rand ER-1, with 50 H.P., 3/60/220 V. motor, receiver, etc.
2—12″x10″ Penna. 3-A with 3/60/440 V. motors.
1—4000 CFM Nordberg, driven by 750 H.P. Diesel Engine, 100 lb. pressure.

RAYMOND PULVERIZERS

3—4 roll low side Mills, each with fan, cyclone, inter-connecting piping.

HAMMER MILLS

3—36″x24″ Jeffrey Type B, ball bearing, one with heavy sledge hammers, other two with U-type heavy bar hammers.
1—36″x24″ No. 4XA Gruendler.
1—No. 1 Williams Regular Mill, 25 H.P. required.

DRACCO DUST COLLECTOR

For handling 30 tons per hour of 20 mesh and finer material, with three Type A compartments, No. 8 Nash vacuum pump, etc. Motors included.

FOR 25 YEARS A SYMBOL OF CONFIDENCE

CONSOLIDATED PRODUCTS COMPANY, INC.
17-19 PARK ROW NEW YORK, N. Y.
Shops and Yard at Newark, N. J., cover eight acres.

COMPLETE STONE CRUSHING
or
SAND and GRAVEL PROCESSING SERVICES
available on tonnage basis

We will install NEW, MODERN portable or semi-portable plant in any practical location. Capacity 100 to 150 tons of stone per hour or 150 to 200 tons of sand and gravel per hour.

Estimates Furnished Without Obligation
Address
CONTRACTORS SERVICE CORP. Camp Hill (suburb of Harrisburg), Pa.

(1) Goodman Mine Shovel, Electric, model No. 48.
(1) 150 H.P. Synch. Motor, 720 RPM. 3-60-220.
(1) 4 ft. x 10 ft. Triplex Selectro Vibrating Screen, never been uncrated.
(1) One-piece Portable Gravel Plant, 9x36 jaw, double rolls, 3 ft. x 8 ft. Triplex Simplicity Vibrating Screen.

WANTED

(1) No. 7 XX ½ Gyr. Crusher, prefer Austin.

M. Wenzel, 5322 Aberdeen Road, Kansas City 3, Kan.

AT ABSOLUTE PUBLIC

AUCTION

WED., AUGUST 25, 1 P. M. E. W. T.

THE MACHINERY & EQUIPMENT, LAND & BUILDINGS FORMERLY THE MINING PROPERTY OF THE

AMERICAN ALLOY CORP.

ON THE PREMISES

STRASBURG, VIRGINIA

(Strasburg Is Located 75 Miles from Washington, D. C.)

Consisting of

MACHINERY Reliance Screens, Rotating Screens, Jaw Crushers, Settling Tanks, Deister Concentration Tables, Deister Slimers, Girator Crushers, Wilfley Sand Pumps, Telsmith Intercone Reduction Crusher, Dorr Duplex Rake Classifier, 8 Spigot Tahrenwald Sizer, Denver Hydro Classifier, Hummer Vibrators, Bucket Elevators, Modified Harz Type Jigs, Deister Overstrom Sand Tables, Adjustable Stroke Eccentrics, 2½ Ft. x 4 Ft. Road Mill, Duplex Drag Dewarter, Ro-Tap Testing Shiev Shaker and many other major items too numerous to mention.

EQUIPMENT Motor Pumps, Motors, Switches, Transformers, Power Panels, Cutler Hammers, Countershafting, Belting, Pulleys, Line-shafting, Mine Cars, Voltage Control Panels, Schramm Compressor, etc.

MISCELLANEOUS COMPLETE CARPENTER SHOP AND EQUIPMENT, COMPLETE BLACKSMITH AND MACHINE SHOP EQUIPMENT, OVER 250,000 FEET 1 INCH and 2 INCH LUMBER. OVER 500 SQUARES HEAVY CORRUGATED ROOFING AND SIDING. OVER 5,000 FEET 4, 7 and 8 INCH STEEL PIPE. 90,000 GALLON REBUILT WOOD STORAGE TANK, ETC.

ELECTRICAL EQUIPT. Over $10,000 nearly new switchboard, 500 Volt, 363 Amps, including automatic resistance starter, 40 H.P. and one Square D convertible Power panel, 600 Volt, 800 Amps.

LAND & BUILDINGS Approximately 260 Acres of Land, original site of mine including one frame 6 room dwelling ready for occupancy.

ALL EQUIPMENT, MACHINERY, PIPE, POWER EQUIPMENT HAS BEEN REMOVED FROM THE MINE AND IS NOW STORED ON THE SITE READY FOR IMMEDIATE LOADING.

BUS TRANSPORTATION ARRANGED FROM STRASBURG OR WINCHESTER, VIRGINIA TO THE MINE SITE.

ALL TO BE SOLD IN SINGLE LOTS WITHOUT LIMIT OR RESERVE

INSPECTION COMMENCING AUGUST 16TH

WRITE FOR DESCRIPTIVE CIRCULAR TO

HARRIS AUCTION & SALES CO.

813 MAIN ST. CINCINNATI, OHIO

COLEMAN HARRIS, *AUCTIONEER*

FOR SALE!

1—Vulcan 6'x42' Rotary Dryer, ½" shell
1—Ruggles Cole Class A-4, 4½'x26' Rotary Dryer, with furnace, piping and fan
2—Raymond High Side Roller Mills, 3 and 5 roll
1—Hardinge Mill, 7'x36", with titanite liners and air classifier
4—Chain Bucket Elevators, with steel housing 40' to 50' centers, buckets 10"x6" to 13"x8"
5—Tyler Hummer Screens, 3'x5', 4'x5'
1—Jeffrey 24"x12" Hammer Mill, Type "A", with 25 HP motor
1—Jeffrey 24"x18" Hammer Mill, Type "A", with 15 HP motor
10—Jaw Crushers, 7"x10" to 24"x36"
1—Jeffrey Hammer Mill, 24"x36", Type "A"
13—Hammer Mills, Williams, Jeffrey, Gruendler
1—Patterson 2'6"x3'6" Continuous Tube Mill, motor driven
1—No. 5 McCully Crusher
7—Rotary Dryers 4'x20' to 6'x60'
1—Rotary Kiln, 8'x9'x200'
3—Smidth 6'6"x21'6" Tube Mills
2—Williams Universal Pulverizers, No. 3
3—Ruggles Cole 70"x30' Rotary Dryers
500' Screw Conveyor, up to 12"
2000' Belt Conveyor, 12" to 24"

PARTIAL LIST ONLY. SEND FOR BULLETIN.

BRILL Equipment Co.
183 VARICK STREET NEW YORK

FOR SALE

ONE 5' x 14' DOUBLE DECK SYMONS VIBRATING SCREEN, COMPLETE WITH DRIVE BUT WITHOUT MOTOR. WEIGHT — APPROX. 6 TONS. AGE—5 YEARS. NO PRIORITY NEEDED.

Contact Purchasing Dept.

•

THE BUFFALO SLAG CO., INC.
866 Ellicott Square Buffalo, N. Y.

FOR SALE

Telsmith Gyratory Crusher 13-B, Shop No. 1467. In excellent condition.

•

Almance Stone Company, Inc.
P. O. Box 150 Chapel Hill, N. C.

DREDGE FOR SALE

This Dredge has been moved to Richmond, Virginia, but is available on short notice.

J. B. & J. W. ROBERTS
P. O. Box 34
Richmond, Virginia

Jaw Crushers—4"x8" up to 18"x36".
Crushing Rolls—16"x10" up to 54"x24".
Gyratory Crushers—No. 3, No. 12.
Ring Roll Mills—No. 0, No. 1, and No. 2.
Swing Hammer Mills.
Rotary Fine Crushers—Nos. 0, 1, 1½ and 2.
Direct Heat Rotary Dryers—3½'x25', 4'x30', 5'x30', 5½'x40', 6'x50', 7'x50' and 8'x50'.
Semi-indirect heat Dryers—5'x30' & 8½'x75'.
Cement Kilns—3' up to 8' diameter.
Hardinge, Marcy & Fuller-Lehigh Mills.
Raymond Mills—Nos. 00, 0, 1, 2 Roll.
5 new 5'x50' dryers.
Tube—Rod and Ball Mills—3' to 6' diameter.
Vibrating Screens—Air Separators.
1—C. P. T. Cos, portable gasolene eng. driven, 210 cu. ft. compressor.
New Dryers built for all purposes.

W. P. HEINEKEN
277 Fulton St., N. Y. Tel. Barclay 7-7298

Damaged & Rejected

Welding Rods

Write for Details

E. COHN & SONS
CEDAR RAPIDS, IOWA

LOCOMOTIVES SHOVELS — CRANES CARS

1—40 ton American 4 wheel saddle tank, standard gauge, A.S.M.E. boiler, completely rebuilt.
1—33 ton Vulcan 4-wheel saddle tank, standard gauge, A.S.M.E. boiler, new firebox in 1942, first class condition.
1—18 ton Porter 4 wheel saddle tank, 36" gauge, A.S.M.E. boiler, completely rebuilt.
1—70 ton American type 2-6-2 side tank locomotive, standard gauge.

1—40 ft. steel underframe flat car, 50 ton.
1—60 ft. steel underframe flat car, 40 ton.
8—70 ft. steel underframe flat cars, 50 ton.

1—2 yard Hayward rehandling 2 line clamshell bucket, completely overhauled.

Birmingham Rail & Locomotive Co.
BIRMINGHAM, ALABAMA

FOR SALE DUST COLLECTORS

Brand new, together with Air Compressor, Fan and Motors, built by Northern Blower. Each Dust Collector has four sections with total of 312 bags, 6" x 8' long. Over-all dimensions of Collector: width 8' 6", height 10' from bottom of cone, length 20'.

Also, two Terroclone Grinding Mills, hammer type, capacity 12,000 to 14,000 lbs. per hr. Grinds to 325 mesh and finer. Directly connected with 75 HP motor. These Mills are installed, connected to Dust Collectors and can be tried out to grind any kind of material before purchasing.

CARBOLA CHEMICAL CO.
Natural Bridge, N. Y.

1 Yd. Osgood Crane Dragline.
206 P. & H. Crane.
105 Northwest Crane—Dragline.
75 Lorain Shovel.
Backhoe for 50-B.
Backhoe for 105 Northwest.
Backhoe for 206 P. & H.
Shovel Front for No. 4 Northwest.
½ yd. Universal Truck Crane.
92 H. P. Cletrac Diesel Tractor & 10 Yd. Heil Scraper.
"60" Caterpillar Tractor & Bulldozer.
Ryan 12 ft. Leaning Wheel Pull Grader.
Bulldozer (Ateco) for "CAT" 50.
30 ton Y & T Chain Falls.
1 yd. Owen Handler Clamshell.
⅝ yd. Owen Digging Clamshell.
¾ yd. Erie General Purpose Clamshell.
1 yd. Erie Handler Clamshell.
1 yd. Brown Hoist Handler Clamshell.
⅞ yd. Blaw Knox Handler Clamshell.
1¼ yd. Page Dragline Bucket.
2¼ yd. Page Dragline Bucket.
8 x 14 Reliance Jaw Crusher.
42 Barber Greene Bucket Loader.
2—No. 77 Senior Austin Western Motor Graders.
1—No. 105 Austin Trencher.

ED. E. MILLER
502 Insurance Exchange Bldg., Detroit, Mich.
Phones: Randolph 6156—4065

FOR SALE
1 Universal Power Stripper. Like new.
1 Besser 9 cu. ft. Mixer
1 20' Vibrating tables for 8" joists (complete).
50 Steel Racks
1 Hand Lift Truck
1 Blystone Mixer 12 cu. ft.
1 25 H.P. Vertical H.P. Boiler
1 20 H.P. Kewaunee Firebox Boiler
1 150 H.P. Horizontal Boiler
Box 820 PIT & QUARRY PUBLICATIONS
538 S. Clark Street Chicago, Ill.

FOR IMMEDIATE DELIVERY OF RUBBER PRODUCTS

Conveyor Belting...Transmission Belting...Elevator Belting...Fire, Water, Air, Steam, Suction or Welding Hose, etc.

CALL, WIRE or WRITE
CARLYLE
THE RUBBER HEADQUARTERS

CARLYLE RUBBER PRODUCTS ARE NEW, GUARANTEED & LOW PRICED

CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

Width	Ply	Top-Bottom	Covers
48"	8	1/8"	1/16"
42"	5	1/8"	1/16"
36"	6	1/8"	1/16"
30"	6	1/8"	1/16"
30"	5	1/8"	1/16"
24"	5	1/8"	1/32"
24"	4	1/8"	1/32"
20"	5	1/8"	1/32"
20"	4	1/8"	1/32"
18"	4	1/8"	1/32"
16"	4	1/8"	1/32"
14"	4	1/16"	1/32"
12"	4	1/16"	1/32"

Inquire For Prices - Mention Size and Lengths

TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18"	6	10"	6	6"	5
16"	6	10"	5	5"	5
14"	6	8"	6	4"	5
12"	6	8"	5	4"	4
12"	5	6"	6	3"	4

Inquire For Prices - Mention Size and Lengths

ENDLESS "V" BELTS

"A" WIDTH All Sizes | "D" WIDTH All Sizes
"B" WIDTH All Sizes | "E" WIDTH All Sizes
"C" WIDTH All Sizes | Sold in Matched Sets

Inquire For Prices - Mention Size and Lengths

PROTECT THAT PLANT
FIRE HOSE

APPROVED SPECIFICATION HOSE
EACH LENGTH WITH COUPLINGS ATTACHED

Size	Length	Per Length
2½"	50 feet	$28.00
	25 "	16.00
2"	50 "	23.00
	25 "	13.00
1½"	50 "	20.00
	25 "	11.00

Specify Thread On Couplings

SPECIAL OFFER . . . HEAVY DUTY RUBBER HOSE

WATER HOSE
Each Length with Couplings Attached

I.D. Size	Length	per Length
¾"	25 feet	$4.25
1"	50 "	8.00
	25 "	6.25
1¼"	50 "	12.00
	25 "	7.50
	35 "	10.50
	40 "	12.00
1½"	50 "	15.00
	25 "	10.00
	35 "	14.00
	50 "	20.00

AIR HOSE

I.D. Size	Length	per Length	Couplings
½"	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 "
¾"	25 "	6.25	2.50 "
	50 "	12.50	2.50 "
1"	25 "	10.00	3.50 "
	50 "	20.00	3.50 "

LARGER SIZES ALSO AVAILABLE
All Prices—Net—F.O.B. New York

CARLYLE RUBBER CO., INC.
62-66 PARK PLACE NEW YORK, N. Y.

FOR SALE
2—Bonnot cast iron, 27" diam. Filter Presses, 40 and 80 chambers. Crushers, Hammer Mills, Grinders, etc. We buy your surplus equipment.
STEIN EQUIPMENT CO.
426 Broome St. New York City

RAILS and ACCESSORIES
RELAYING RAILS—Super-quality machine-reconditioned—not ordinary Relayers.
NEW RAILS, Angle and Splice Bars, Bolts, Nuts, Spikes, Frogs, Switches, Tie Plates, and all other Track Accessories.
Most sizes usually available from warehouse stocks. Every effort made to take care of emergency requirements. Phone, Write or Wire
L. B. FOSTER COMPANY, Inc.
PITTSBURGH NEW YORK CHICAGO

1—Allis Chalmers Model 54, Motor Grader complete with cab, electric lights, starter and scarifier.
BUTLER BROTHERS
(Iron Ore Miners)
137 E. 6th St. St. Paul 1, Minn.

EQUIPMENT FOR SALE
1—Gorman-Rupp 6" Centrifugal Pump with Electric Motor.
2—Rex 6" Centrifugal Pumps with Electric Motors.
2—Deming 2" Centrifugal Pumps less Motors.
For information phone or write—
●
FABICK TRACTOR COMPANY
Salem, Illinois—944

FOR SALE

CHICAGO PNEUMATIC 105 cu. ft. two-stage portable Air Compressor on 4-wheel pneumatic tired trailer chassis.

WORTHINGTON 160 cu. ft. two-stage portable Air Compressor, on 2-pneumatic tired wheels.

SULLIVAN two-stage stationary Air Compressor, 1051 cu. ft. displacement. Direct connected to 200 H.P. Fairbanks-Morse oil engine; and receiver tank.

SULLIVAN, straight line, single stage, 12x12 stationary Air Compressor; flat belt drive with 75 H.P., 3 phase, 60 cycle, 440 volt induction motor, with starter and switch, and receiver tank.

¾ yard Continental Scraper.

Allis-Chalmers Model "L" Tractor with 12 yard Garwood Scraper.

●

CUNNINGHAM-ORTMAYER COMPANY
429 W. Michigan St. Milwaukee 3, Wis.

PRICED FOR QUICK SALE

1—Allis-Chalmers Blake Type Jaw Crusher 10"x20" $800.00

LIPPMANN ENGINEERING WORKS
4603 West Mitchell St. Milwaukee, Wis.

DEPENDABLE USED MACHINES

American 1 yd. dragline
Bay City ¾ yd. shovel, rebuilt
Barber Greene 24 x 60 conveyor
Haiss loader, rebuilt
Gruendler 10 x 20 roller bearing crusher
Waukesha 80 HP power unit
Sand tanks, pumps, washers, screens, buckets.

TRACTOR & EQUIPMENT COMPANY
3515 W. 51st St. Chicago, Illinois

Bucyrus Class "14" 2½ yd. Steam Dragline 70 foot Boom. Boiler, engines, cab, boom and paint in exceptionally good condition. Located, Richmond, Va., also Erie ¾ yd. Steam 40 foot boom combination dragline and clamshell in good repair. Located, Norfolk, Va.

Box 812
PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago 5, Illinois

FOR SALE

Dolomite Limestone also Dolomitic Limestone, Beach Gravel for purifying iron ores, road material and concrete.

Shore of Lake Huron and near east end of Upper Michigan.

W. F. COOPER
323½ N. Washington Ave. Lansing, Michigan

FOR SALE

One 70 ft. Mast,
80 ft. Boom,
Steel Guyed Derrick.

HENRY FLIGELTAUB COMPANY
Division Street and New York Avenue
Evansville, Indiana

GRAB BUCKET

Industrial Brownhoist, 1½ yard.
Reconditioned — Attractive Price.

●

The Industrial Equipment Corporation
P. O. Box 1647, Pittsburgh 30, Pa.
Warehouse: Carnegie, Pa.

FOR SALE

Vulcan 50-ton steam locomotive, 2-6-2 Prairie type, completely rebuilt to I.C.C. rules for full time. Available for immediate delivery and operation.

BARON IRON & EQUIPMENT COMPANY
P. O. Box 601
Chattanooga Tennessee

15 ton, 22' x 9' Bonded Motor Truck Scale..$440.00
20 ton, 24' x 9' Bonded Motor Truck Scale..$525.00
26 ton, 34' x 9' Bonded Motor Truck Scale..$824.00
3' x 8', 2 deck Bonded Vibrating Screen....$685.00

All new—large stocks, immediate delivery. Also guaranteed used equipment without priority.

BONDED SCALE CO., 140 Bellview, Columbus, Ohio
Scale, Vibrating Screen and Crusher Mfrs.

ELECTRICAL MACHINERY

Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully Guaranteed. Send us your inquiries.

V. M. NUSSBAUM & CO., Fort Wayne, Ind.

FOR SALE — A GOOD TIME TO BUY!

2 6W—1 10 W diesel draglines for rent
7 steel towers 60'—52 projectors park light
Aerial tramway 7900' span 20 TPH
Comb. shovel crane dragline gas cat Koeh.
Barrel hoist Link Belt 800 also frt. elevator
2 timber hogs also 2 Doig nailing machines
2 electric cat shovels Marion 125
8 K & J 20 yd. and 10 K & J 16 yd. air dump cars
260 HP semi diesel engine generator 3 ph. 60 cy.

A. V. KONSBERG
8 S. Dearborn Street Chicago, Illinois

MILWAUKEE (Westinghouse-Baldwin) gasoline locomotives, (3), 7-ton, 30" gauge, 100% rebuilt.
DAVENPORT, Porter & Vulcan steam locomotives (4), 18-ton, S/T, 36" ga. 10"x16" cyls., A-1.
PIONEER 300W portable gravel washing plant.
NEWHOUSE 7" reduction crushers, a.c., (2).
EUCLID 6-yd. bottom dump crawler wagons (8).
BUCYRUS 50B steam shovel front, 2-yd., A-1.
BUCKEYE semi-Diesel eng.-gen. set, 260 HP, a.c.
WANTED: 24" and 16" gyratory crushers.
H. Y. SMITH CO., 828 N. B'way, Milwaukee, Wis.

IMMEDIATELY AVAILABLE

870 HP 725 KVA 3 unit Diesel Generator Plant.
420 HP Busch Sulzer, 270 and 180 HP Worthington.
All complete and fine shape. 3/60/2300 volt.
240 HP Fairbanks 3/60/240 V. Diesel Generator.
1574' Synchronous Motor Driven Air Compressor.

MISSISSIPPI VALLEY EQUIPMENT CO.
513 Locust St. St. Louis 1, Mo.
Need Anything? Anything for Sale?

FOR SALE

1—100,000 & 50,000 Gal. Tanks & Towers
3—20,000 Gal. Oil Storage Tanks
1—150 KW, 250 V. Chuse Eng. Gen. Set
1—813 & 500 HP 200 lb. Asme WT Boilers
2—1 Yd. Gasoline Cranes—Fine Cond.
1—550 HP Speed Reducer—Like new

H. & P. MACHINERY CO.,
6719 Etzel Ave. St. Louis, Mo.

FOR SALE OR LEASE

Sand & gravel business located near a large Government project. This is a money making proposition. Only experienced or responsible operators need apply.

HEN VALLEY SAND AND GRAVEL COMPANY
Harriman, Tennessee

FOR SALE
SLACKLINE CABLEWAY

85' Steel Tower—150 H.P. Motor—2 yd. Bucket. Complete in every detail and in best of condition.

10" DREDGE ELECTRIC

completely equipped—45 ft. ladder—chain cutter—will sell attached equipment without hull.

KICKAPOO SAND & GRAVEL CO.
Box 112, Peru, Indiana

WILL TRADE

For a late ¾ yard shovel dragline combination, a modern washing, crushing, & screening plant.

Box 808
Pit and Quarry Publications
538 S. Clark St. Chicago 5, Ill.

FOR SALE

1—1¼ yd. Lima combination shovel dragline and crane, completely rebuilt.
2—Gardner-Denver 420 cu. ft. air compressors powered with caterpillar diesel engines mounted on trucks.
4—Gardner-Denver wagon drills.
1—Caterpillar Model 48 elevating grader powered with diesel engine.
1—Ingersoll-Rand jack bit grinder.

ANDERSON EQUIPMENT COMPANY
616 Merchants National Bank Bldg.
Omaha, Nebraska

FOR SALE

One—Three unit type UI Butler Bin
550 Ton capacity
Each unit 14 ft. square 14x42 overall 26 ft. high
Side and bottom radial gates, included.
Location, near Milwaukee. Immediate delivery.

WAUKESHA WASHED SAND & GRAVEL CO.
623 North Second Street, Milwaukee 3, Wis.

CORE DRILLING ANYWHERE

We look into the earth

PENNSYLVANIA DRILLING COMPANY
PITTSBURGH, PA.

Rebuilt & Ptd.; K2 No. 1423 Bay City 35' ⅝ dragline, Lorain ⅝ No. 9377 35' crane, Ex. rope Cwd. Sh. & trip. Byers 544BB ⅝ 40' Cr. & Sh., NW 104 No. 1055 72 NW shoes & Spkts., 65' Bm., (2) Koehring 65' Bm. & 15' jibs, No. C319 & 188, Brownhoist 1 yd. 65' Bm. A fine HD crane. Must be seen.

GEORGE C. KENNEY MACHINERY COMPANY
Southwest Boulevard and 23rd Trafficway
Kansas City, Mo.

FOR SALE

1—SAND & GRAVEL DREDGE, steel construction, 14x40' pontoon, 25' rotary cutter, 70 HP Hercules Eng. 6" H&B pump, V belt driven, quick dump stone trap, 5 drum hoist, spuds, priming pump all complete. Bargain.
1—150 HP DOUBLE DRUM HOIST direct connected to two speed motor with all electrical controls. Used very little.

C. D. SMELSER CONST. CO.
130 N. Lafayette Blvd. South Bend, Indiana

RELAYING RAIL

Practically all weights—Any quantity. Immediate shipment, strictly first quality reconditioned Relaying Rail and Accessories.

Write, Wire or Phone

MIDWEST STEEL CORPORATION
Charleston, W. Va.

1—Fairbanks Morse 90 HP Diesel power unit complete
1—Fairbanks Morse 15 HP single cyl. horizontal oil engine
1—Austin Machinery Co. ⅜ yd. caterpillar crane
1—G. E. 220 volt Motor and starting switch.

JOSEPH A. MERTEL
Peru, Illinois

WANTED

Permanent position open for Superintendent. Complete charge large lime plant located in Southeast. In replying, please give complete experience and personal references, enclosing recent photograph, and salary expected. All replies accepted in confidence. Our employees familiar with this advertisement.

Box 804
PIT & QUARRY PUBLICATIONS
538 S. Clark St. Chicago 5, Illinois

WANTED TO BUY Air Seal Vault Molds and concrete joist molds, used concrete block machines and pallets, hand operated Jack Lift Trucks with spring suspended frames (similar to Barrett-Cravens).

UNIVERSAL CONCRETE PIPE CO.
297 S. High St. Columbus, Ohio

WANTED TO PURCHASE

Now is the time to sell your idle cranes, shovels, draglines, tractors, graders, boilers, buckets, and portable gravel plants. Let us know what you have for sale.

●

THE ACME EQUIPMENT COMPANY
14057 Schaefer Highway
Detroit 27, Michigan

WANTED experienced concrete block and special products man to take full charge of Product Department of national organization having twenty-five plants. Applicant should be familiar with practical side of block and special products manufacture.

BOX 704
PIT AND QUARRY PUBLICATIONS
538 S. Clark St. Chicago 5, Illinois

Wanted to buy Standard gauge, all steel, 16, 20 or 30-yard Air Dump cars in good condition. Also, Standard Gauge, all steel, Jordan Spreader ready to work. No junk or equipment which needs extensive repairs.

GIFFORD-HILL & COMPANY, INC.
412 Texas Bank Bldg. Dallas, Texas

STANHOPE OFFERS!

AIR COMPRESSORS
BELTED: 355, 528, 676, 1000, 1300 & 1570 Ft.
ELECTRIC: 478, 576, 807, 1302, 1722 & 2850 Ft.
DIESEL: 105, 315, 420, 603, 807 & 1000 Ft.
PORTABLE GAS: 110, 160, 220, 310, 540 & 1300 Ft.
STEAM: 49, 310, 528, 1300 & 2200 Ft.

BUCKETS
50 Skips and Battleship Type, 2 to 6 Yds.
5 Owen & Bucyrus Rock Grabs.
CLAMSHELL: ½, ¾, 1, 1½ & 2 Yds.
ORANGE PEEL: ¾, 1, 1½, 2 & 3 Yds.
DRAGLINE: ½, ¾, 1, 1½ & 2 Yds. Cap.

CRANES & DRAGLINES
5 Ton BROWNHOIST, 30 Ft. Boom Gas.
12 Ton NORTHWEST 50 Ft. Boom Gas.
12 Ton KOEHRING 45 Ft. Boom Gas.
16 Ton Speedcrane, Gas, 50 Ft. Boom.
25 Ton BROWNING & 30 Ton AMERICAN Locomotive.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.
2½ Yd. Lorain Model 95, Diesel Dragline.
3 Yd. Monighan Diesel Dragline.
5 Yd. Monighan Diesel Dragline.

CATERPILLAR SHOVELS
½ Yd. P. & H. Gas & ¾ Yd. Insley Gas.
¾ Yd. KOEHRING Gasoline.
¾ Yd., 1¼ Yd., 2 Yd., 4 Yd. & 8 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas & 7/8B2 Steamer.
1¼ Yd. BUCYRUS 41B Steamer.
1½ Yd. Lima 750 Diesel.
1½ Yd. KOEHRING 601—Gas.

DUMP CARS
46—KOPPEL 1½ Yd., 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
20—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD AND TUBE MILLS
6x8 Continuous Pebble Mill.
5x5 Batch Mill.
5'x22" HARDINGE CONICAL Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
4x8, 8x6, & 10x9 Straight Ball Mills.
8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x16, 5x18, 5x22, & 6x32 Tube Mills.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 5x12 and 6x12 ROD MILLS.
4x16 Smidth Tube Mill Silex.
5½x20 Smidth Tube Mill Mang. Lining.
5½x18 P & M Tube Mill Silex.

PULVERIZERS
No. 1 Sturtevant Ring Roll.
RAYMOND Auto. Pulverizer No. 0000, 0 & 3.
RAYMOND Imp Mills No. 4, 32 & 55.
GRUENDLER XXB Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 Ft. Chaser Mill.

SEPARATORS AND COLLECTORS
14 ft., 8 ft. and 12 ft. Separators

ROLL CRUSHERS
36x60 Fairmont Single Roll.
36x20 Diamond Double Roll.
24x24 & 36x16 & 36x20 Diamond Double Roll.

JAW CRUSHERS
10x8, 13x7¼, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 20x11, 26x12, 30x15, 30x13, 36x30, 36x18, 36x14, 36x15, 36x9, 36x6, 38x18, 36x10, 36x24, 42x9, 48x36, 60x42, 84x66, 36x16, 9x36.
30x10 Gruendler Roller Bearing.

CONE & GYRATORY CRUSHERS
18 in., 24 in., 30 in., 36 in. and 48 in. Symons Disc.
21K & 18N Allis Chalmers.
4—10 TZ Traylor 4 Ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory.
8 in. Traylor T. Gyratory, Telsmith No. 9.
17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
6, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16" Traylor.
7 Ft., 5 Ft., 4 Ft., 3 Ft. and 2 Ft. Symons Cone.

DRILLS
4—SANDERSONS 14 & LOOMIS 44.
7—Ingersoll-Rand Wagon Drills, FB & M2.
29T ARMSTRONG Well Drill.

HOISTING ENGINES
7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8¼x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

HAMMER MILLS
4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Gruendler No. 6X.

STEEL BINS
72 Ton BLAW-KNOX 2 Compt.; also 250 ton.
100 Ton BLAW-KNOX 2 Compt.
300 Ton Johnson 3 Compt. Aggregate, 1 Compt. Cement with 2 yd. Aggregate and Cement Weigh Batcher.

SYNCHRONOUS MOTOR GENERATORS
100 K.W. RIDGWAY 3/60/2200-250-275 volt.
150 K.W. GEN. ELEC. 3/60/2200-250-275 volt.
200 K.W. RIDGWAY 3/60/2200-250-275 v., 900 rpm.

DIESEL ENGINES
60 HP Fairbanks Morse.
140 HP Fairbanks Morse.
200 HP Atlas.

DIESEL GENERATORS
240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.
30 K.W. Buda 110 v.

RAYMOND MILL
5 Roll High Side.

CONVEYOR PARTS
BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

ROTARY DRYERS AND KILNS
36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 24 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 5x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

STEEL DERRICKS
GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

LOCOMOTIVES
DIESEL: 7—4½, 8 and 15 Ton 36 & 42 In. Ga.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

SCREENS
VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72. HUMMER, ROTEX, NIAGARA & ROBINS, LINK BELT & HURON.
REVOLVING: 3x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x20, 6x20.

STEEL STORAGE TANKS
35—4000, 5000, 6000, 8000, 10000, 15000 and 20000 gal. cap. Horizonal and Vertical.
50000 gal. on 100 ft. tower.
60000 gal. on 85 ft. tower.
100000 gal. on 100 ft. tower.

RAILROAD CARS
12—50 Ton Cap. Battleship Gondolas.
7—50 Ton Cap. Flat Cars.

SAUERMAN DRAG AND SLACKLINES
1—¾ yd. Gas 1—1½ yd. Electric
1—1 yd. Electric 3—2 yd. 3 yd. & 4 yd. Electric

R. R. TRACK SCALE
125 Ton 50' x 10'6" Platform 4 Section.

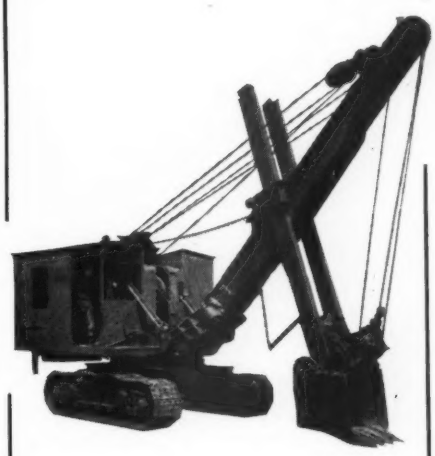
WHIRLEY CRANES
5 Clyde 75 to 100 Ft. Boom.

DRILL SHARPENERS
5 I.R. 4K Shank Grinders.
6 Ingersoll-Rand 54, 40, 50 & 34's.
7 Sullivan Class A. & C.
8 Gardner-Denver 5A & No. 6DS.

MINE LOADERS
5 Eimco, GD. & Conway.

(Cable Address: "STANEQUIP" New York)
Lincoln Bldg., 60 E. 42nd St., New York, N. Y.
Murray Hill 2-3075 or 2-3076

R. C. STANHOPE, INC.



1—SHOVEL, Koehring, Model No. 2, equipped with 1⅛-1¼ yd. Dipper, powered by Waukesha Gasoline Engine with Electric Starter. In good operating condition. A real bargain. Price.....**$6500.00**

1—CONCRETE PAVER, Koehring, Model 27E, complete with Skip, Water Tank, Bucket, powered by Waukesha Gasoline Engine. Price.....**$1500.00**

1—CRANE, P & H, Model 206, 40 ft. Boom, powered by 4 cylinder Gasoline Engine **$2500.00**

1—CRAWLER WAGON, LaPlant-Choate, 10 yd. two-way Dump, Rock-type Body, adapted to D7 or D8 Tractor. Price **$1000.00**

1—COMPRESSOR, Stationary, Sullivan, Model WJ3, Angle Compound, 450 CFM, equipped for Flat Belt Drive.....**$1333.00**

15—DRUMS EXTREME PRESSURE LUBRICANTS, No. 733A SAE250 Mid-Continent Petroleum Diamond. We are closing out our stock of lubricants at a reduced price. List Price 9½c. Our Price Lb. **$.05**

1—ROLL CRUSHER, Diamond, 20 x 24, equipped with Smooth Rolls. Price **$1235.00**

1—CRANE, Steam, Industrial Brown Hoist, 15-ton capacity at 12 ft. radius, equipped with 50 ft. Boom. Good Condition.**$4250.00**

2—SHOVELS, Bucyrus-Erie, Model GA2, Gas Air, ¾ yd. capacity. For Quick Sale, both units in operating condition. Price for both **$3000.00**

1—ROLLER, Galion, 10-ton, 3 wheel, 4 cyl. Gasoline Engine **$2395.00**

1—FINE SUB GRADER, RB, Late Model, 22 to 24 foot, used on 2 short Jobs only. Price on application.

1—COMPRESSOR, Davey, Portable 105 foot, powered by Gasoline Engine, on 4 pneumatic tires **$1300.00**

1—SAW RIG, C.H.&E. Table Type, equipped with 12" Rip and 12" Cut-off Saw, powered by Gasoline Engine.....**$195.00**

2—VIBRATORS, Jackson Hydraulic Model, powered by Gasoline Engine, equipped with Vibrating Head, mounted on Pneumatic Tired Wheel-Barrows. Each..**$225.00**

1—WAGON DRILL, Ingersoll-Rand, Model 71X with Model 71 Drifter on 2 Pneumatic Tired Wheels. Price.....**$1020.00**

1—60KVA GENERATOR SET, consisting of a rebuilt Fairbanks-Morse Generator, 3 phase, 60 cycle, 220 volts, with exciter and rheostat, direct connected to rebuilt Model DHXB Hercules 6 cyl., 110 h.p. Diesel Engine, radiator cooled, with electric starter and batteries, all mounted on steel channel base **$3650.00**

•

ROY-C-WHAYNE
SUPPLY COMPANY
LOUISVILLE, KENTUCKY

GOOD USED EQUIPMENT

1—9 ft. CLEARFIELD Wet Grinding Pan, Motor Drive, 60 HP, 220 volt DC motor.

1—9 ft. CARLIN Wet Grinding Pan, arranged for direct motor drive.

1—Sturtevant 86" down draft exhaust blower, Belt drive.

1—½ yard P&H Caterpillar Shovel—model 300-A.

•

Ira C. Jordan
2508 East Belleview Place
Milwaukee 11, Wisconsin

ROCK DRILLS

Condition guaranteed. Priced at 55% of new.

28 Gardner-Denver Drifters, Model AF99N, complete with 1¼" round chuck with AF41B automatic feed, mounting for 36" change, with DM 950 shell and DMC 770AX Hole spotter. (Described in Gardner-Denver Bulletin DD).
4 Worthington No. 175 sinker type Jack Hammers, 1¼" chuck for lug steel.
3 Thor Model 75 Jack Hammers, 1" chucks for hexagon steel.
2 Gardner-Denver Stopers, Model R91, automatic rotating, 1¼" steel.

Each guaranteed in good operating condition. Priced at 55% of present new price. No priority required.

NIXON-HASSELLE COMPANY, INC.
1300 Carter Street Chattanooga, Tennessee

FOR SALE: Four way, three-deck Diamond screen now in operation. Five hundred dollars f.o.b. Buchanan, Virginia.

This unit is in good working condition and is being replaced by a larger screen.

JAMES RIVER HYDRATE & SUPPLY COMPANY
Buchanan, Virginia

FOR SALE

1—Dempster-Dumpster with 3—2 yard Buckets mounted on 1938 White Truck
1—Single Drum Quarry Hoist.

ALL in First Class Condition

STANDARD CONCRETE PRODUCTS CO., INC.
NORTH SHERMAN ST., EXTENDED
YORK, PENNSYLVANIA

SKIP HOIST

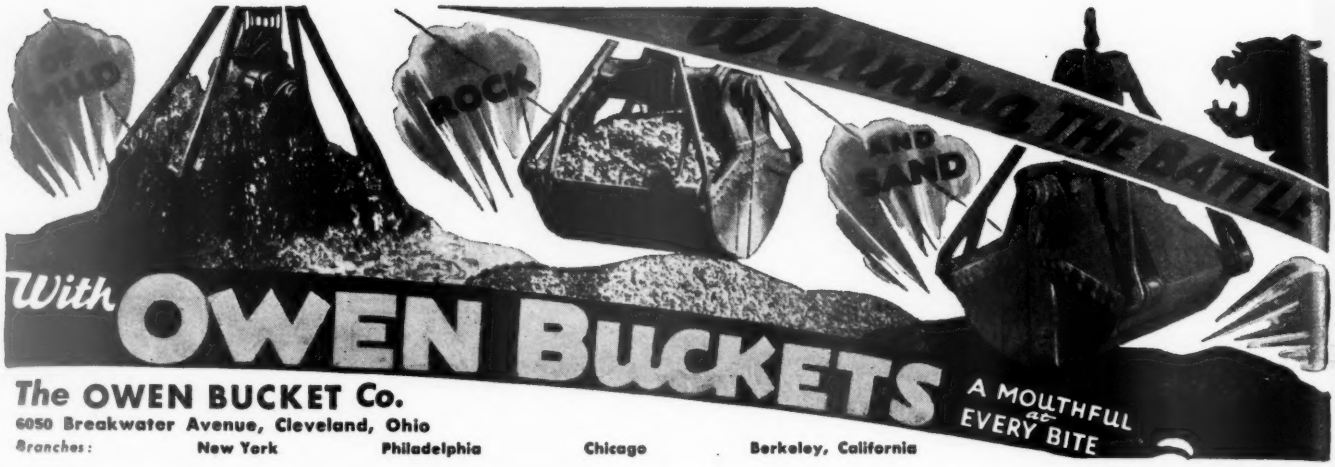
36" dia. drum with 80 H. P. G. E. MTC motor, brake, & starter.

IRON & STEEL PRODUCTS, INC.
13490 S. Brainard Ave., Chicago 33, Ill.
"Anything containing IRON or STEEL"

"TRACTORS AND BULLDOZERS FOR IMMEDIATE DELIVERY"

Rebuilt "35" size, $1850; "55" size, $1850; hydraulically controlled bulldozer attached to each; self starting, electrically equipped. Other tractors with and without winch $495 to $1500.

OVERTON C. EVANS
Mt. Sterling, Kentucky



The OWEN BUCKET Co.
6050 Breakwater Avenue, Cleveland, Ohio
Branches: New York Philadelphia Chicago Berkeley, California

Index to Advertisers

Alexander Hamilton Institute... 69
*Allis-Chalmers Tractor Division.. 23
*American Cable Div. American Chain & Cable Co., Inc. ..... Inside Back Cover
*American Chain & Cable Co., Inc. ..... Inside Back Cover
American Manganese Steel Division 63
*American Pulverizer Co..... 93
American Rubber Mfg. Co..... 91
Anchor Concrete Mchy. Co..... 83
Armstrong-Bray & Co..... 84
Atlas Powder Co..... 26
*Austin Western Road Machinery Co. 2

Bacon, Inc., Earle C..... 72
*Barber-Greene Co. 87
Bemis Bro. Bag Co..... 85
Birmingham Rail & Loco. Co....101
Brill Equipment Co.....100
Broadcast Section 96-103
*Brooks Equipment & Mfg. Co... 94
Brown-Bevis Eqpt. Co..... 96
*Buda Co., The..... 88
*Buell Engineering Co., Inc..... 38
*Buffalo Wire Works Co., Inc.... 71
Builders-Providence, Inc. 72
*Butler Bin Co..... 84

Carbola Chemical Co.....101
Carlyle Rubber Co., Inc.....101
Chicago Perforating Co..... 72
*Chicago Pneumatic Tool Co..... 21
Cleveland Wire Cloth & Mfg. Co.104
*Colorado Iron Works..... 64
Commercial Shearing and Stamping Co. 83
Consolidated Products Co., Inc.. 99
Continental Gin 65
Cooper-Bessemer Corp. 3

*Denver Equipment Co..... 94
De Soto Foundry, Inc..... 90
De Witt Hotels 84
*Diamond Iron Works, Inc..... 90
*Dorr Company, The..... 37

*Eagle Iron Works..... 91
Electric Storage Battery Co..... 7
*Ensign-Bickford Co., The..... 33
Equipment Corporation of America 96-99

Flink Company 93
*Fuller Co. 31

Gates Rubber Co., The..... 13
General Excavator Company..... 92
Gilson Brothers Co..... 25
*Gruendler Crusher & Pulverizer Co. 92
Gulf Oil Corp..... 5

Haiss Mfg. Co., Inc., Geo..... 72
*Hardinge Co., Inc..... 12
Harris Auction & Sales Co.....100
Heat and Power Co., Inc..... 98
*Hendrick Mfg. Co..... 94
Hercules Steel Products Co..... 66
Huntsville-Sinclair Mining Co... 98

*Iowa Manufacturing Co..... 22

*Jackson & Church Co..... 86
*Jaeger Machine Co., The..... 87
*Jeffrey Mfg. Co..... 93

*Kennedy-Van Saun Mfg. & Eng. Corp. 15
Kent Machine Co..... 83
Koehring Company 18

*Laughlin Co., Thomas..... 62
*Link-Belt Co. 1-30
*Link-Belt Speeder Corp..... 30
Lubriplate Division of Fiske Brothers Refining Company.... 14
Ludlow-Saylor Wire Co..... ..... Inside Front Cover

Macdonald Engineering Co..... 89
Mack Trucks 6
Marion Steam Shovel Co., The... 29
*McLanahan & Stone Corp..... 91
Miller, Ed. E.....101
Motor Truck Sales and Equipment Co. 96
*Multiplex Concrete Machy. Co.. 87
Murphy Diesel Company..... 67

Neff & Fry Company..... 84
New Holland Machine Co..... 70
*Nordberg Mfg. Co..... 24

*Owen Bucket Co.....104

Patterson Equipment Co..... 97
*Pennsylvania Crusher Co..... 71
Pennsylvania Drilling Co.....102
Pettibone Mulliken Corp..... 20
*Pioneer Engineering Works, Inc.. 94
*Porter Co., H. K..... ..... Outside Back Cover
Portland Cement Association.... 87
*Pressed Steel Car Co., Inc., Industrial Division 68

*Raymond Pulverizer Div. of Combustion Engineering Co., Inc.. 35
Rollway Bearing Company, Inc... 19

*Sauerman Bros., Inc..... 83
Schaffer Poidometer Co..... 70
*Scientific Concrete Service Corp. 82
Simplicity Engineering Co..... 93
*Smidth & Co., F. L..... 32
Smith Engineering Works..... 27
Southern Iron & Eqpt..... 96
Sprout, Waldron & Co., Inc.... 94
Standard Oil Co. of California.. 16
Stanhope, Inc., R. C.....103
*Stearns Mfg. Co..... 73
St. Regis Paper Co..... 17

Taylor Forge & Pipe Works.... 28
*Traylor Engineering & Mfg. Co.. 9
*Tyler Co., The W. S..... 70

United States Rubber Co.....10-11
*United States Steel Supply Co.. 92
United States Treasury Department 95
*Universal Vibrating Screen Co.. 94
Underzagt & Sons, G. A..... 98

Walsh Co., J. T..... 97
Walsh Co., Richard P..... 98
Webber Equipment Co..... 97
*Wellman Engineering Co..... 89
Westinghouse Electric & Mfg. Co. 8
Whayne Supply Co., Roy C.....103
*Wickwire Spencer Steel Co..... 4
*Williams Patent Crusher & Pulverizer Company 94

***See also Detail Information in the 1943 Pit and Quarry HANDBOOK**

"WIRE SCREENS?
SURE BILL—BUY 'CLEVELAND'—WE DO!"

Tough, Durable, Accurate Wire Screens for Vibrators or Rotary Jackets

Cleveland is the "Buy" Word of Quality

THE CLEVELAND WIRE CLOTH & MFG. CO.

3574 E. 78TH STREET CLEVELAND, OHIO

THE U.S.S. OKLAHOMA IS RIGHT SIDE UP

★ ★ ★ ★

AMERICAN CABLE TRU-LAY PREFORMED WIRE ROPE DID THE PULLING

Official U. S. Navy photograph

Pearl Harbor, Hawaii. Even Date—The 29,000 ton U.S.S. "Oklahoma" is again afloat. During months of preparation by the Pacific Bridge Company, some 50 miles of TRU-LAY Preformed and CRESCENT Non-Preformed wire rope (ranging in diameter from 1″ to 3″) was shackled to the huge ship, then in less than 69 hours operating time the "battlewagon" was pulled out of her list of 151 degrees back to within 10½ degrees of natural position.

For this spectacular job, a sling or bridle was put over the ship. This bridle was made of 42 lengths (averaging 360′) of 3″ CRESCENT Non-Preformed rope. Attached to this were 21 reels (10,000′ each) of 1″ TRU-LAY Preformed wire rope. These were attached to winches ashore, and after less than three days steady pulling, the "Oklahoma" was right side up.

The American Cable Division, not only for this shining example but for its less spectacular day-in and day-out effort, is proud to be numbered among those who are working to speed the war's victorious end.

AMERICAN CABLE DIVISION Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Portland, Tacoma

AMERICAN CHAIN & CABLE COMPANY, INC.

BRIDGEPORT, CONNECTICUT

ESSENTIAL PRODUCTS . . . TRU-LAY Aircraft, Automotive, and Industrial Controls, TRU-LOC Aircraft Terminals, AMERICAN CABLE Wire Rope, TRU-STOP Brakes, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Castings, CAMPBELL Cutting Machines, FORD Hoists, Trolleys, HAZARD Wire Rope, Yacht Rigging, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

PORTER 80 TON DIESEL ELECTRIC SWITCHER

TWO COMPLETE POWER PLANTS

NAVY

PORTER
"Better Built"
Locomotives
Established 1866

Designed to provide instantly-available motive power for a wide range of switching jobs, the 80-ton Porter Diesel-Electric sets a new high standard of availability and low-cost operation. Modern in every respect, the new PORTER has many features of advanced engineering design, placing it far ahead of its field. The locomotive illustrated is powered by two independent 250 h. p. Diesel-Electric units. Thermostatically-controlled oil cooling system insures proper lubrication at low cost. Safety platform with steps at all corners speeds up switching operations. This mighty 80-ton Porter is an ideal unit for all heavy switching purposes. Complete description sent on request.

ONLY **PORTER** BUILDS A **COMPLETE** LINE OF LOCOMOTIVES FOR INDUSTRY

H. K. PORTER COMPANY, INC.
PITTSBURGH PENNSYLVANIA